

(No Model.)

2 Sheets—Sheet 1.

M. I. COHEN.
FIREPLACE GAS HEATER.

No. 579,740.

Patented Mar. 30, 1897.

Fig. 1.

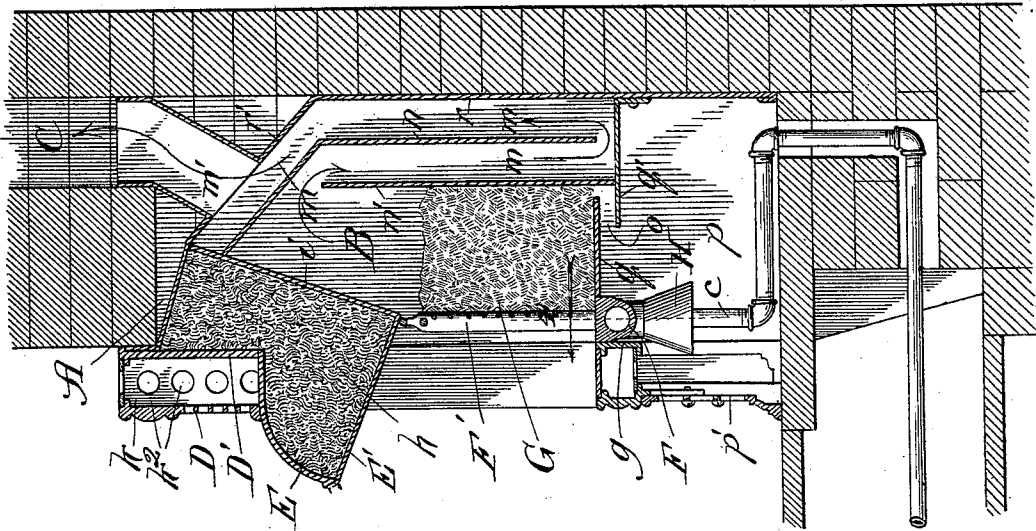
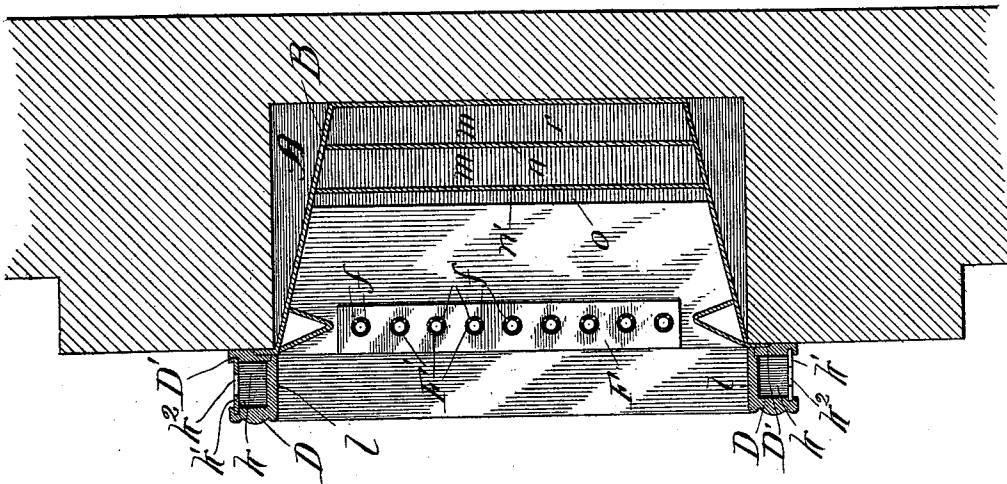


Fig. 2.



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Fig. 3.

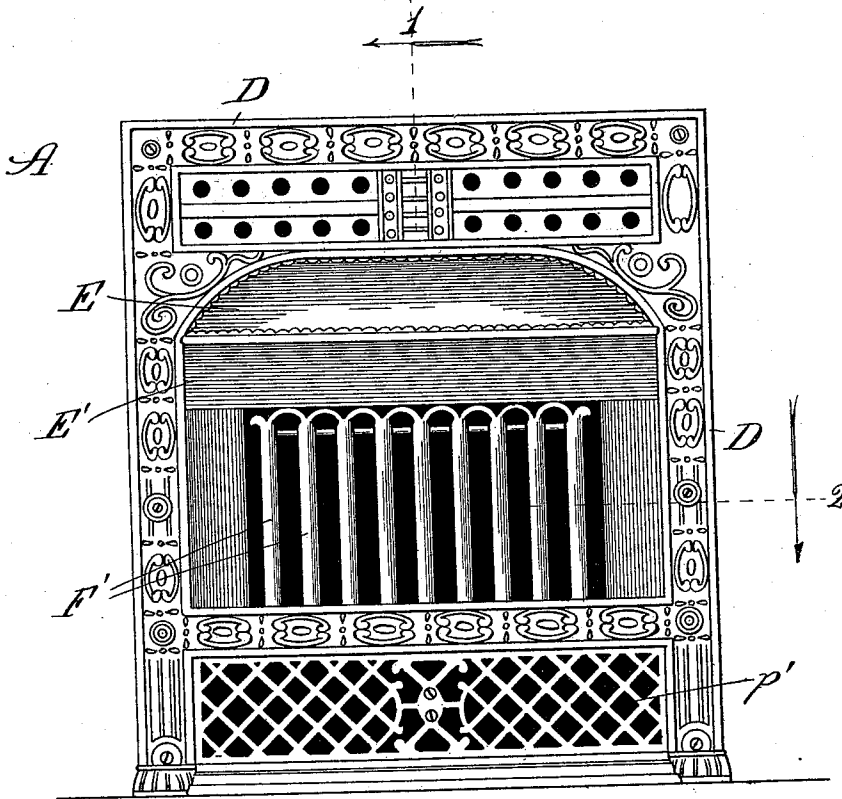
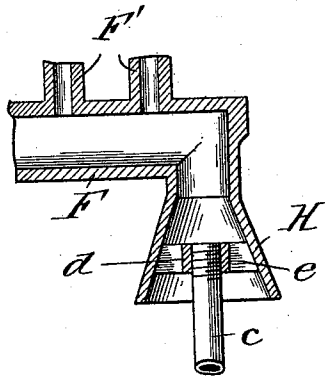


Fig. 4.



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UNITED STATES PATENT OFFICE.

MORRIS I. COHEN, OF CHICAGO, ILLINOIS.

FIREPLACE GAS-HEATER.

SPECIFICATION forming part of Letters Patent No. 579,740, dated March 30, 1897.

Application filed January 18, 1896. Serial No. 575,983. (No model.)

To all whom it may concern.

Be it known that I, MORRIS I. COHEN, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Fireplace Gas-Heaters, of which the following is a specification.

My invention relates to an improvement in the class of apparatus commonly provided for fireplaces in houses to heat the rooms with gas, and comprising, as the generally-stated construction, an ornamental metal frame affording the finish about the edges of the opening for the fireplace, which is ordinarily surrounded by tilework and frequently surmounted by a mantel, a box proceeding backward into the fireplace-opening from the frame and in which it is usual to pile imitation fuel in lumps, and a gas-pipe extending lengthwise along the base of the frame at its inner side and provided with outlets for the gaseous fuel.

Referring to the accompanying drawings, Figure 1 is a vertical sectional view of my improved heater, the section being taken at the line 1 on Fig. 3 and viewed in the direction of the arrow; Fig. 2, a sectional view of the same, the section being taken at the line 2 on Fig. 3 and viewed in the direction of the arrow; Fig. 3, a view of my improved heater in front elevation; and Fig. 4, a section of the gas and air mixing feed, taken at the line 4 on Fig. 1, viewed in the direction of the arrow and enlarged.

B is the box, which seats in the fireplace opening or chamber A. It is formed of metal, with its upper and lateral sides flaring in a forward direction from the back r , the sides and back being extended below the bottom q to form the pit p , which is covered by an ornamental grating p' . As shown in Fig. 1, the bottom q is in two sections on different planes, leaving an air-inlet o between their overlapping edges, adjacent to which there rises from the bottom and extends short of the top of the box or basket a diaphragm n' , reaching from side to side of the box and between which diaphragm and the back r there extends short of the base q another diaphragm n .

The top r' of the box or basket B is shown as slanting upward and forward from the back, and it contains the outlet m' for the

products of combustion to the chimney C, and the diaphragms n and n' , the former of which slants at its upper portion correspondingly with the top r' , form between them a circuitous flue m , leading from the air-inlet o to the outlet m' . About the forward edge of the basket or box B is secured a rear frame D' , preferably cast of metal and flat throughout, and spaced from and in front of this frame is another facing-frame D, which may be formed by casting, with a web l extending at a right angle about its inner edges to meet and space it from the frame D' , to which it is fastened. Thus a recess k is formed about the sides and top of the double front afforded by the frames D and D' , and the recess is provided with a cover k' , containing at intervals throughout its length perforations k^2 , whereby cold air may circulate in the recess k behind the front plate or frame D, the exposed surface of which is highly ornamented, and prevent it from becoming heated to an extent which would injure the ornamental surface.

E is the ornamental hood, usually provided on the upper portion of the ornamental frame in heaters of the class to which my invention relates, its object, besides that of affording ornamentation, being to tend to prevent the flames from the burning gaseous fuel from climbing up along the front surface of the facing. This last-named object, however, it does not accomplish reliably, so to cause the heat to be reflected into the room and prevent the flames from climbing along the outer surface of the hood I provide the deflector-plate E' , which extends from a point adjacent to the burners outwardly and upwardly to the lower edge of the hood. From the rear edge of said plate a back plate i extends upward across the forward upper edge of the diaphragm n to the top r' , closing the space between the latter and the diaphragm. The space contained between this deflector, the frame D D' , and the hood E, I fill with some material h non-conductive of heat, such as mineral wool, asbestos, or the like.

F is the gas-pipe, which is caused to lie along the front of the fireplace, as behind the lower cross-bar g of the frame D' , where it is out of the way, and from this pipe there extend upward at intervals the branch pipes F' , which

thus appear as a species of grated front covering the fireplace-opening. These branches for the purpose of strengthening them and that of ornamentation are connected together
 5 at their upper ends by a scalloped form of connection. Along the rear side of each branch pipe it is provided with two series of perforations *f*, the members of each line of the perforations being directed, preferably, outward,
 10 as shown, since by this arrangement the impinging effect is enhanced of the flames against the imitation lump fuel *G*, which is retained in place by the front-grate function of the branch pipes, and which partially fills
 15 in a pile the basket or box *B*.

In practice the ignited gas from the burners assumes the form practically of a sheet of flame, which contacts with the front or visible wall of the imitation fuel, with the result of rendering said wall incandescent and producing thereby a very pleasing effect and a high degree of heat. The gas as it leaves the burner-apertures is unimpeded by the fuel, and the ignited gas rises in a substantially
 25 unbroken wall of flame and produces the incandescence of that portion of the fuel which is adjacent to the burner-tubes.

The fuel-pipe *F* is shown to receive its supply of gas at one end (the other end being
 30 closed) through a depending flaring mouth *H*, Fig. 4, containing a spider *e*, which supports at the center of the mouth a threaded thimble *d*, at which the gas-supply pipe *c* is connected with the pipe *F*. This depending
 35 mouth affords a mixing-chamber for the air and gas, the air entering about the discharge

end of the pipe *c* and mixing with the gas therein on its way to the pipe *F*.

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

1. In combination with a fireplace-heater, a deflector extending outwardly from the upper portion of the same and having an upward inclination, a hood extending from the mantel-front to the outer edge of said deflector, and a rear plate extending upwardly from the inner edge of the deflector and forming with it and the hood a chamber for holding a non-conductor of heat, substantially as described.

2. In a fireplace gas-heater, a fire-box having an air-inlet *o* in its base and an outlet *m'* for the products of combustion, a diaphragm *n'* extending upward from the base behind said opening and a diaphragm *n* extending downward short of said base between the back of the box and said diaphragm *n'* and forming therewith the circuitous flue leading from said inlet to said outlet, substantially as described.

3. A burner for fireplace-heaters, comprised of a series of tubes having apertures discharging into a combustion-chamber adapted to receive imitation fuel, said apertures being situated as described to discharge and cause gas to burn against the portions of such imitation fuel which are adjacent to the tubes, for the purpose set forth.

MORRIS I. COHEN.

In presence of—

J. N. HANSON,
 J. H. LEE.