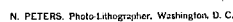


Patented July 17, 1888.



# UNITED STATES PATENT OFFICE.

JOHN M. ELLISON, OF ALLEGHENY CITY, PENNSYLVANIA.

## NATURAL-GAS HEATER FOR FIRE-PLACES.

SPECIFICATION forming part of Letters Patent No. 386,391, dated July 17, 1888.

Application filed February 25, 1888. Serial No. 265,255. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN M. ELLISON, a citizen of the United States, and a resident of Allegheny City, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Natural-Gas Heaters for Fire-Places; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

Figure 1 of the drawings is a representation of a front elevation of my improved fire-place. Fig. 2 is a vertical section on line *x x*, Fig. 1. Fig. 3 is a vertical section through one end wall. Fig. 4 is a top view of chamber D.

The object of this invention is to provide apparatus of economical and effective character for heating and ventilating houses or apartments thereof; and the invention consists in the construction and novel combinations of devices, all as hereinafter set forth, and pointed out in the appended claims.

In the accompanying drawings, the letter A designates a fire-place having hollow side walls, B, and back wall, C, and provided also with the hollow sloping top D, which is separated by the throat V from the transverse connection or girder E, which is preferably of arched form and extends across from the front portion of one of the hollow side walls to the front portion of the other; and I sometimes provide a transverse vertical partition between the front portion of the chamber in said side wall and the back portion, dividing the same into a front flue, F, and a back flue, G, which communicate by the opening *a* in said partition. Cold air is conducted into said chamber or flues and enters at the inlets *b b*, near the lower ends of said chamber or flues, as shown. When the back wall, C, is hollow, as preferred, it is designed to provide an opening for communication near the top of the back wall at each side thereof, as at *c c*, whereby the air may enter the back chamber from the side chambers. A tubular passage, *d*, leads from the back chamber to the sloping chamber H in the hollow inclined top D, which covers in the back portion of the fire-place, as

shown. Openings *e e* are also made at the ends of the hollow top in the floor thereof, to admit hot air from the chambers or rear flues of the side walls. Usually I provide ribs K K in this top flue between the end portions and middle thereof to strengthen the parts. These ribs, however, have passages at *g g*, whereby communication is established between the end portions and middle part of said sloping chamber. In the bottom or floor of said sloping chamber is also an inlet, *h*, which receives the end of a pipe, *k*, whereby communication is established between this sloping chamber and the hollow heater L, which is secured in the fire-place. This heater is designed to be of sectional construction and to have somewhat the appearance of a coil or grating. Usually I provide two coils, N N, which are arranged side by side, and are provided with laterally-extending pipes or connections *l*, which engage openings in the inner walls of the fire-place at the sides thereof, to establish communication between the side flues or chambers and the sectional heaters. These heaters are also provided with rearwardly and upwardly extending pipes or connections *m*, which may be again connected by a union, *v*, from which a pipe, *k*, extends to the top chamber, or the single pipes *m* may connect directly with the floor of the top chamber.

In building the heater it is preferred to use short pieces of straight pipe, as at *u*, and elbows or unions *z*, into the ends of which the straight pieces of pipe are secured, each section forming, as indicated, a sort of coil, preferably, through which the air from the chambers in the side wall courses, being heated in its passage by the flames of the natural gas or other combustible which play around and about the heater L, raising said heater to a high temperature. The air thus heated passes upward into the chamber in the sloping top D, and being there mingled with the warm air from the hollow back and sides of the fire-place, may be conducted off through openings *s* and suitable pipes or passages in connection therewith to heat other apartments, while the apartment in which the fire-place is located is heated by the burning gas and the heater L, whose temperature is raised thereby. The burner-opening for the natural gas is indicated at J. I is the spreader. For ventilating

purposes it is designed to provide, in connection with openings in the front walls of the side flues of the fire-place, registers R, which may be regulated to graduate the admission of air from the room into these side chambers, according to requirement.

Having described this invention, what I claim, and desire to secure by Letters Patent, is—

1. In a fire place for natural gas having hollow sides and top, a sectional pipe heater, L L, in said fire-place having lateral pipe-connections leading to said sides and upwardly-extending pipe-connections leading to said top, substantially as specified.

2. The combination, with a fire-place having natural-gas burners and hollow side walls, of

the sloping hollow top and the pipe heaters connected by pipe-extensions to said sides and top, substantially as specified.

3. The natural-gas fire-place heating apparatus having hollow sides and top and registers R in said sides, coil-pipe in said fire-place above the natural-gas burner, and extensions of said coil pipe to the chambers in said side walls and to the chamber in said top, substantially as specified.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN M. ELLISON.

Witnesses:

C. R. FERGUSON,  
M. P. CALLAN.