

(No Model.)

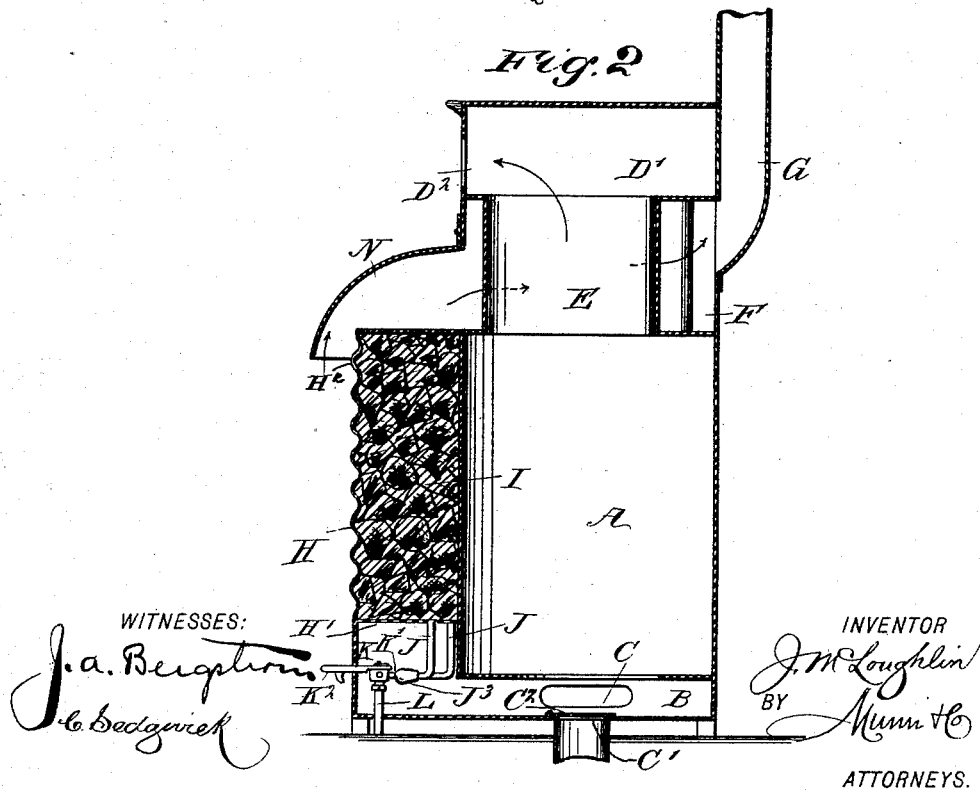
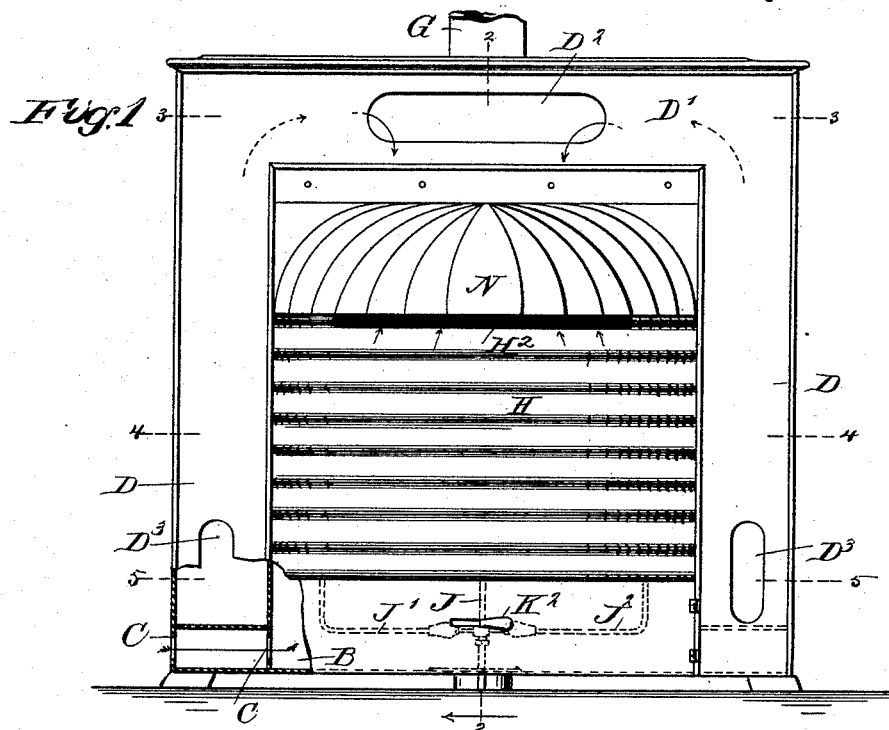
2 Sheets—Sheet 1.

J. McLOUGHLIN.

HEATER.

No. 522,850.

Patented July 10, 1894.



WITNESSES:

J. A. Berghman  
J. C. Sedgwick

INVENTOR

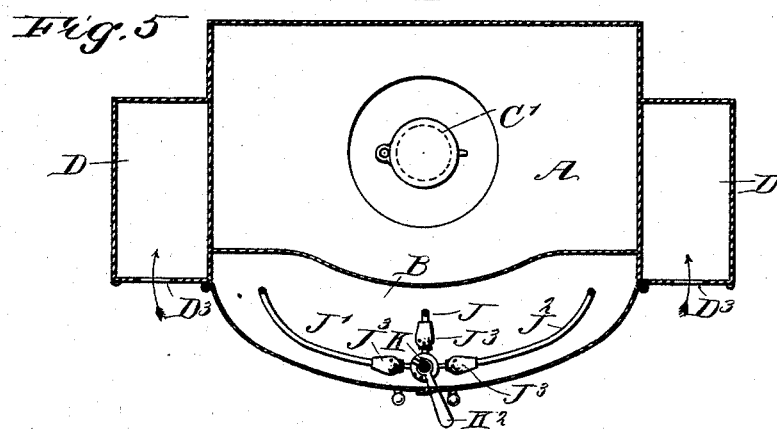
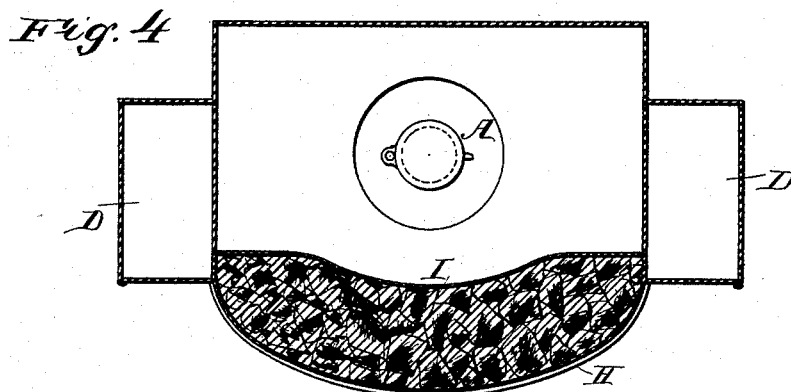
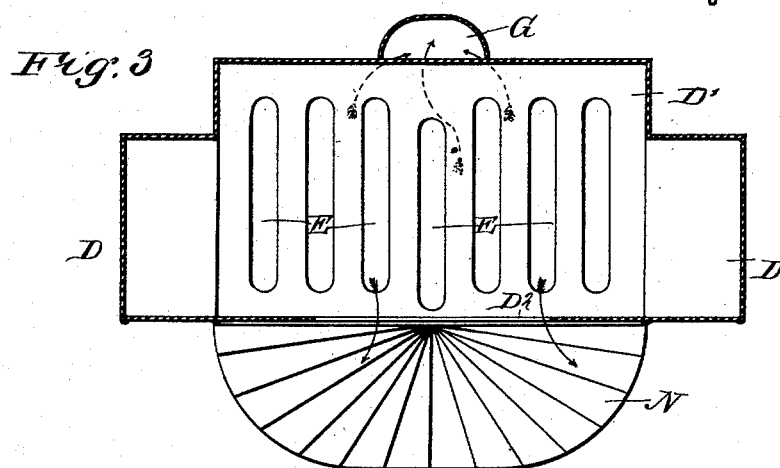
J. M. Loughlin  
BY Munn & Co

ATTORNEYS.

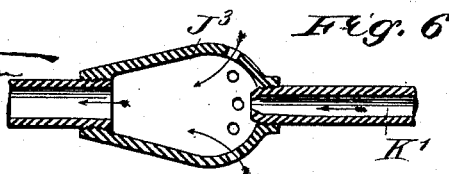
J. McLOUGHLIN.  
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No. 522,850.

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WITNESSES:  
*J. a. Bergstrom*  
*G. Sedgwick*



INVENTOR  
*J. McLaughlin*  
BY  
*Munn & Co*  
ATTORNEYS.

# UNITED STATES PATENT OFFICE.

JOHN McLOUGHLIN, OF BOSTON, MASSACHUSETTS.

## HEATER.

SPECIFICATION forming part of Letters Patent No. 522,850, dated July 10, 1894.

Applicatior filed October 3, 1893. Serial No. 487,069. (No model.)

### *To all whom it may concern:*

Be it known that I, JOHN McLOUGHLIN, of Boston, in the county of Suffolk and State of Massachusetts, have invented a new and Improved Heater, of which the following is a full, clear, and exact description.

The invention relates to hot air furnaces, and its object is to provide a new and improved heater, which is simple and durable in construction, very effective in operation and arranged to readily heat the air by the use of ordinary producer gas, or other gas.

The invention consists of certain parts and details, and combinations of the same, as will be fully described hereinafter and then pointed out in the claim.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a front elevation of the improvement with parts in section. Fig. 2 is a transverse section of the same on line 2—2 in Fig. 1. Fig. 3 is a sectional plan view of the same on line 3—3 of Fig. 1. Fig. 4 is a similar view of the same on the line 4—4 of Fig. 1. Fig. 5 is a like view of the same on the line 5—5 of Fig. 1; and Fig. 6 is an enlarged sectional side elevation of the air inlet for the gas supply pipes.

The improved heater is preferably arranged in the shape of a fire place, and is provided with a hot air chamber A, below which is arranged an air inlet chamber B, provided in its sides with air inlets C, extending through the lower ends of the legs of the pilaster D, as is plainly shown to the left in Fig. 1, so that outer air can pass through the said inlets C and chamber B to the hot air chamber A. In the bottom is arranged an auxiliary air inlet C', preferably connected by a pipe with the outer air and adapted to be closed by a valve C<sup>2</sup>, under the control of the operator, the said auxiliary air inlet serving for indirect draft, in case the heater is used in sick rooms, hospitals, &c.

From the top of the hot air chamber A leads a series of vertically disposed air outlets E, discharging into the upper or middle portion D' of the pilaster D, the said middle portion being provided in its front with an opening D<sup>2</sup>, through which passes the hot air into the room.

In the lower ends of the legs of the pilaster D, are arranged inlet openings D<sup>3</sup> through which air may pass from the room to flow within the pilaster to the middle portion D', so as to be heated in its upward passage by the heat emanating from the hot air chamber A. This air mixes with the air from the hot air chamber A, and is discharged through the opening D<sup>2</sup> into the room. The outlets E from the hot air chamber A extend through a chimney drum F interposed between the middle portion D' of the pilaster D and the top of the hot air chamber A, the said drum being connected at its rear with the chimney flue G.

On the front of the hot air chamber A, is arranged a fire box H, provided with a perforated bottom H', on which rest blocks I, made of a mixture of clay and asbestos to represent artificial fuel. Near the upper end and at the front of the box H is arranged an outlet slot H<sup>2</sup>. Into the lower end of this fire box H, open the gas supply pipes J, J' and J<sup>2</sup>, each provided with an air inlet bulb J<sup>3</sup> plainly shown in Fig. 6, and connected by branch pipes K', with a valve K, connected with the gas supply pipe L, so as to supply ordinary producer gas, or other gas as fuel. The valve K is arranged in such a manner that it first opens connection between the pipe L and the pipe J, and when the valve is fully open connection is also made between the pipe L and the pipes J' and J<sup>2</sup>. By this arrangement either one or three flames may be kept burning in the fire box H. The gas passing through the branch pipes K' into the air inlet bulbs J<sup>3</sup>, is mixed in the latter with the incoming air so that a highly combustible mixture passes through said pipes into the fire box, to be burned therein. The handle K<sup>2</sup> of the valve K extends into the room to be under the control of the operator, and when the heater is used in hotels, the handle is provided with a lock stop so that guests have to call a bell boy to open it whenever they desire to use the heater.

The upper, open end of the fire box H extends under a hood N, which opens into the room at the front upper end of the fire box as is plainly illustrated in Fig. 2. The inner end of the hood N connects with the drum F so that the gases rising from the burning of the fuel in the fire box H, pass through the

slot H<sup>2</sup> in the upper end of the box, under the hood N, and from the latter into the drum F, to finally pass to the chimney G. Waste gases are mixed with air entering the hood at the front end thereof, and the said waste gases serve to heat the air rising through the outlets E, extending through the drum F as previously described.

It will be seen that when the gas is burning in the fire box H, the heat generated will heat the air passing through the hot air chamber A, and the waste gases passing through the drum F, will heat the air passing through the outlets E, so that the air finally passes in a highly heated condition into the middle portion D' of the pilaster D, to pass through the opening D<sup>2</sup> into the room, to heat the same. The cooler and foul air near the floor of the room passes through the inlets C and C', into the hot air chamber A, to be heated therein. Part of the hot air also passes through the hood N to mix with the waste gases.

Having thus fully described my invention,

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

An improved heater having a body portion, having a closed front formed with a combustion escape opening near the top, a fire box directly on the rear of such front having a perforated bottom, a main air or heating chamber formed on the rear of the fire box having a cold air inlet at the bottom, an air receiving chamber under the main chamber and fire box, a heat collecting and distributing chamber at the top, having a series of pendant flues held to communicate with the hot air chamber and a smoke or combustion chamber surrounding such flues, having an off-take at the rear and a hood like portion at the front projected over the escape opening in the fire box, all arranged substantially as shown and described.

JOHN McLOUGHLIN.

Witnesses:

CHARLES N. PRATT,  
JAMES H. RUSH.