(No Model.)

P. B. CLARK.

HOT AIR FURNACE.

No. 296,926. Patented Apr. 15, 1884.

Fig. 2

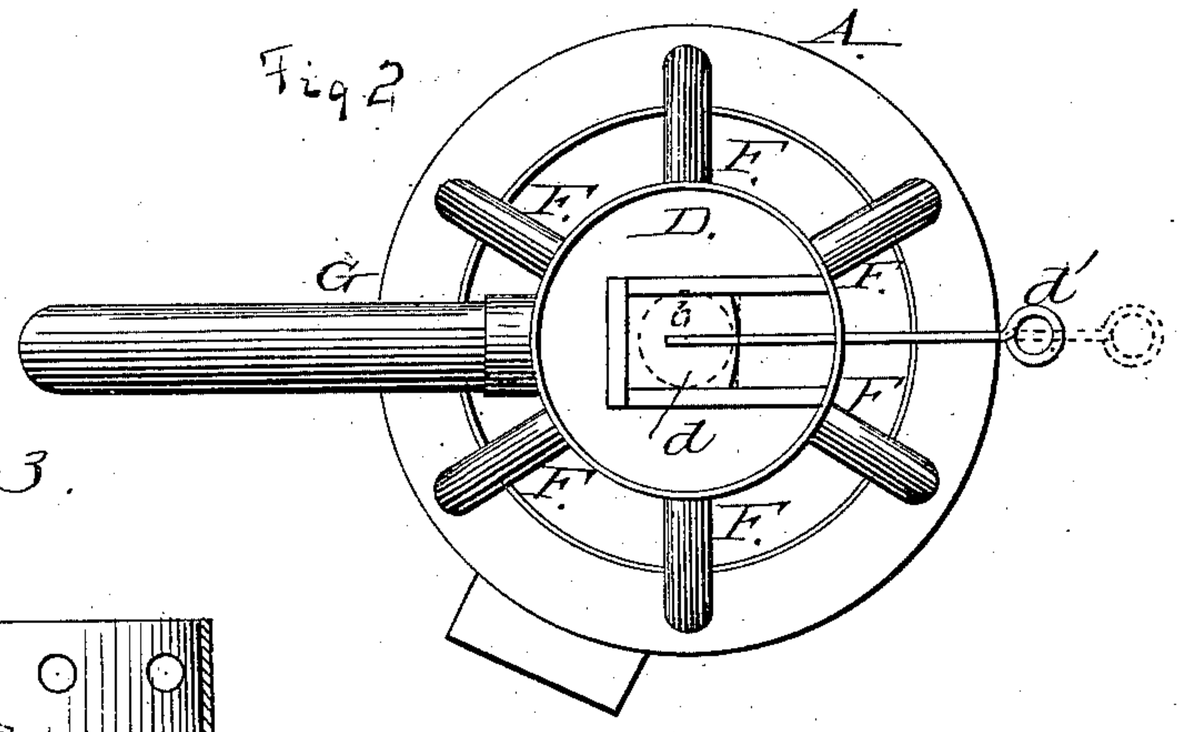


Fig. 3.

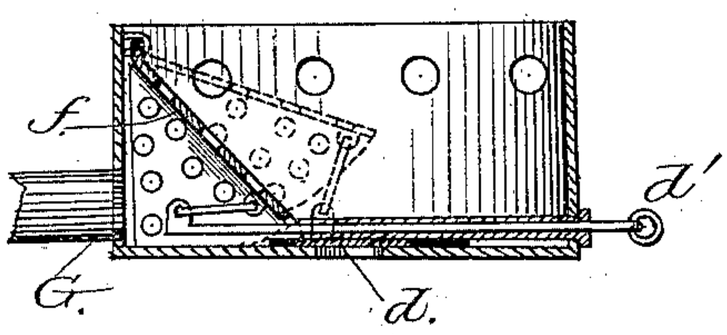
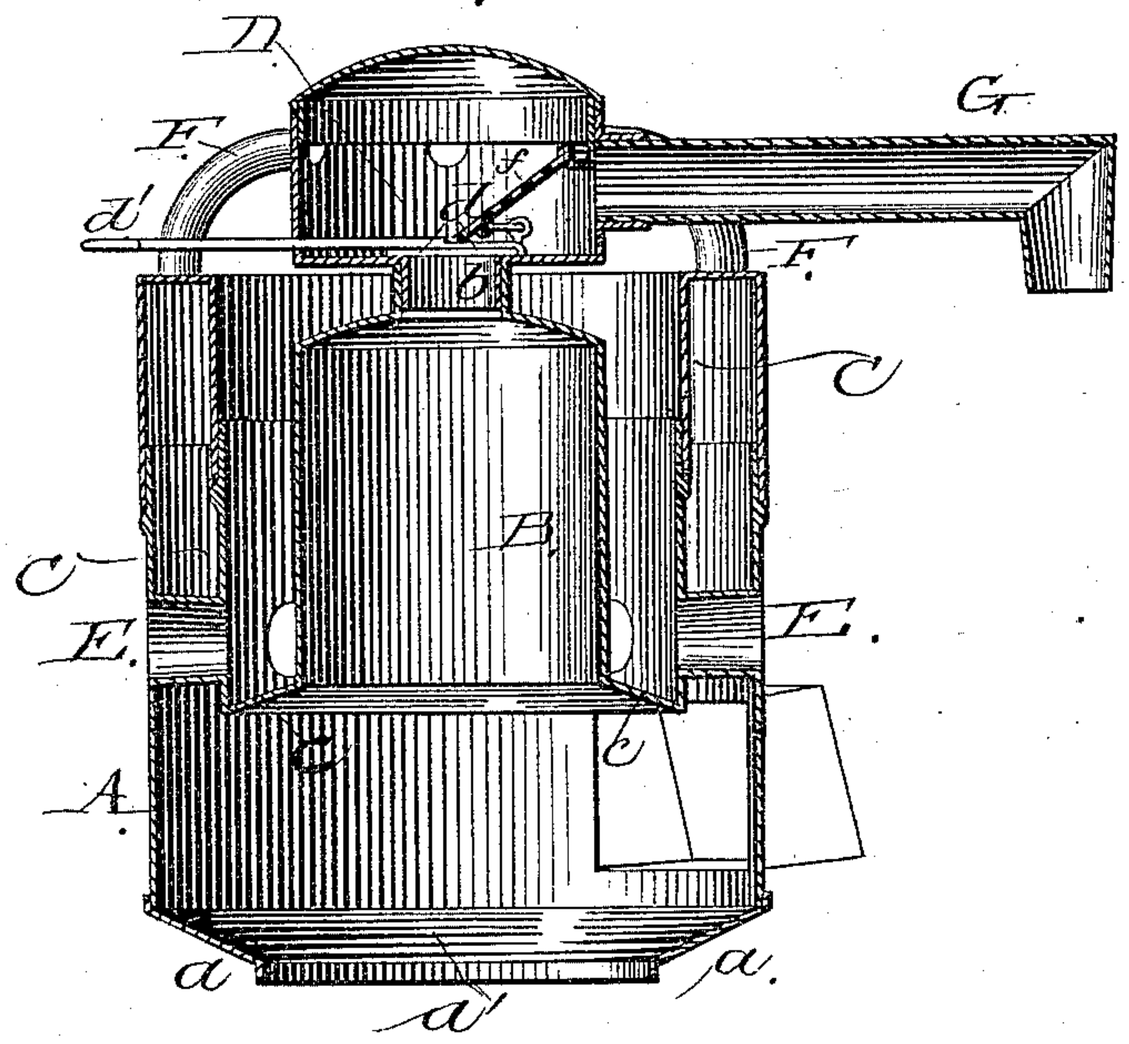


Fig. 1



Witnesses.

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UNITED STATES PATENT OFFICE.

PERRY B. CLARK, OF MINNEAPOLIS, MINNESOTA.

HOT-AIR FURNACE.

SPECIFICATION forming part of Letters Patent No. 296,926, dated April 15, 1884.

Application filed September 25, 1883. (No model.)

To all whom it may concern:

Be it known that I, PERRY B. CLARK, a citizen of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Hot-Air Furnaces; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being made to the accompanying drawings, forming a part of this specification, and in which—

Figure 1 represents a central vertical section through my improved furnace; Fig. 2, a top view or plan; Fig. 3, a detached view, to be hereinafter referred to.

My invention relates to certain new and useful improvements in hot-air furnaces, having for its object the production of a furnace in which a large radiating-surface is secured, and the products of combustion caused to pass as much of said surface as is possible; and to this end the invention consists in novel features of construction and combination and arrangement of parts, all as will be hereinafter fully described, and set forth in the claims hereto annexed.

In the drawings, A represents the outer shell or drum having an inwardly-flaring bottom, *a*, and central opening, *a'*, adapted to fit over the usual cylindrical fire-pot of stoves and furnaces.

B represents an interior shell, and C an intermediate shell, and D a combustion-chamber, arranged above and communicating with the interior shell, B, by a pipe, *b*, which may be opened and closed by a sliding damper, *d*, arranged in the bottom of chamber D, and operated by a handle, *d'*, for a purpose to be hereinafter described. The space between the shells B and C is closed at the bottom by a flaring plate, *c*, and is left open at the top to permit the heated air to pass upwardly and directly out of the furnace into the room.

E represents a series of pipes passing through the outer shell or drum A, and communicating with the space between the shells B and C, and near the bottom thereof. These pipes E may connect by pipes with the cold-air chamber generally arranged in the bottom part of furnaces, the object of the pipes E being to deliver the cold air directly against the dome-cylinder or shell C, (the hottest point of the furnace,) and also preventing the breaking of the upward current of radiation from the fire-pot and sides of the outer shell or dome A, where the heat strikes before passing between the outside and inner shells, A and C. The products of combustion pass upward between the shells A and C, and thence through the curved flues E into the combustion-chamber D. This construction enables me to secure a large radiating-surface, and compel the products of combustion to pass by as much of that surface as possible, and distribute the same equally on all sides of the shells A and C and deliver them into the combustion-chamber D.

f represents a perforated hinged hood or damper arranged over the exit-opening communicating with exit-pipe G, and which hood or damper retains all the products of combustion in said chamber D, allowing merely the gases to pass off through the exit-pipe G.

The damper *d* is only opened when it is desired to clean the combustion-chamber, and the hood or damper *f* is also hinged or pivotally connected to the operating-handle *d'*, so as to be raised when opening damper *d*, to throw or permit the settlings from the products of combustion to fall down into the fire-pot.

The construction above described of curved flues is intended for anthracite coal only, and is practically self-cleaning, as they form the fourth of a circle, and therefore could not fill up in the use of anthracite coal all accumulations falling back and down into the fire-pot.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a hot-air furnace, the combination, with the inner shell or dome, B, combustion-chamber D, exit-pipe G, and pipe *b*, of the hinged perforated hood or damper *f*, damper *d*, and operating-handle *d'*, substantially as and for the purpose herein shown and described.

2. The combination, with the combustion-chamber D, and exit-pipe G, of the perforated hood or damper *f*, substantially as and for the purpose set forth.

3. In a hot-air furnace, the combination, with the shells B C, provided with the flues F E, of the combustion-chamber D, opening into the interior shell, B, said opening being covered by a damper, the actuating-rod of which is also pivotally connected to and actuates a perforated hood, *f*, communicating with the exit-pipe, as and for the purpose set forth.

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Witnesses:
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