

No. 642,055.

Patented Jan. 23, 1900.

C. L. RIDGWAY.

FURNACE OR THE LIKE FOR BURNING GAS.

(Application filed Feb. 20, 1899.)

(No Model.)

Fig. 1.

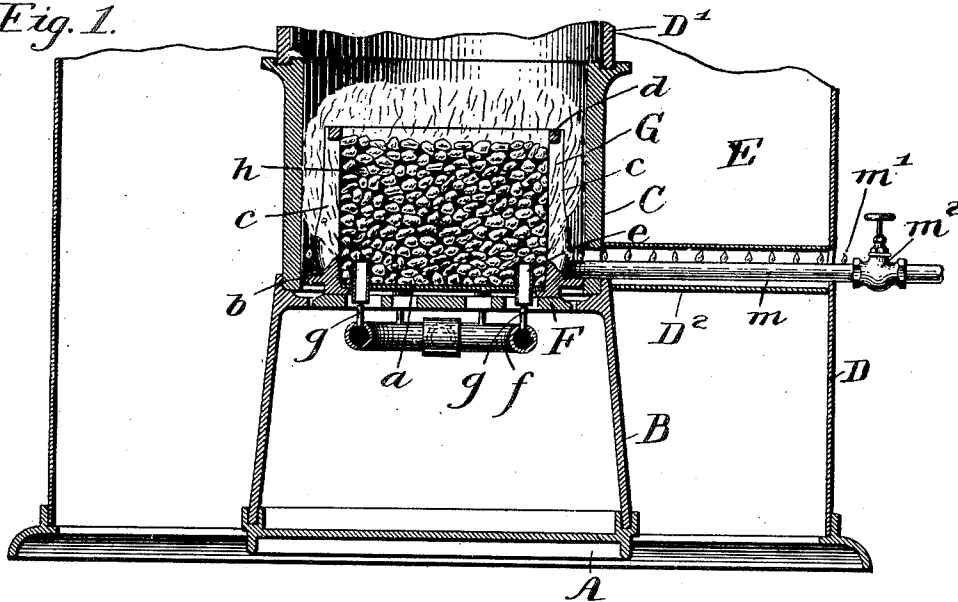
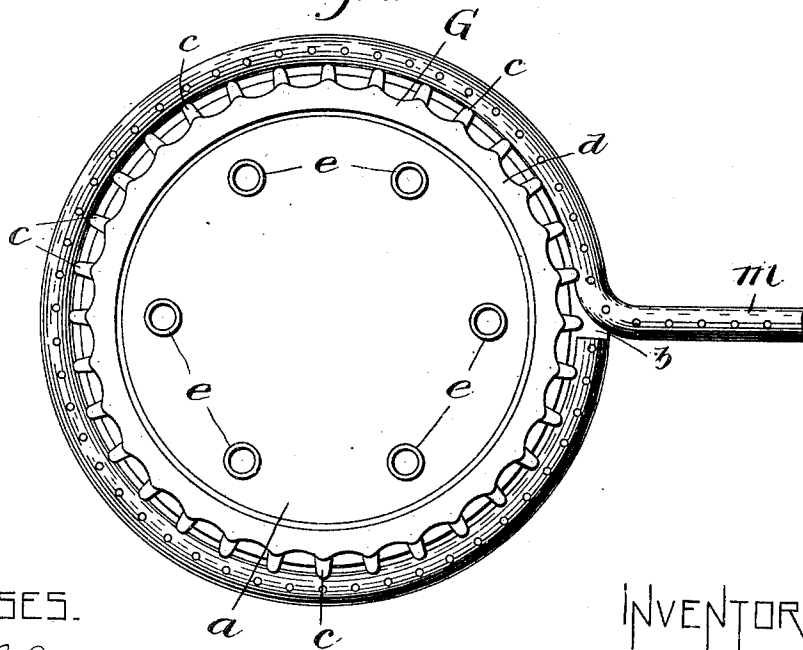


Fig. 2.



WITNESSES.

Charles F. Logan.
Fred S. Grunkhof.

INVENTOR.
CHARLES L. RIDGWAY.
BY Crosby Gregory,
ATTYS.

UNITED STATES PATENT OFFICE.

CHARLES L. RIDGWAY, OF WINTHROP, MASSACHUSETTS.

FURNACE OR THE LIKE FOR BURNING GAS.

SPECIFICATION forming part of Letters Patent No. 642,055, dated January 23, 1900.

Application filed February 20, 1899. Serial No. 706,249. (No model.)

To all whom it may concern:

Be it known that I, CHARLES L. RIDGWAY, of Winthrop, county of Suffolk, State of Massachusetts, have invented an Improvement in Furnaces and the Like for Burning Gas, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

10 This invention has for its object the production of an attachment to be applied to an ordinary furnace whereby it may be readily adapted to burning gas.

15 In my studies to adapt ordinary furnaces for burning coal so that gas might be used when the price of gas would warrant I have devised as a part of my invention a basket or pot which may be set into the usual fire-box of a furnace, the fire-brick of said fire-box, if
20 lined with brick, being preferably removed in order that the gas may act with greater efficiency against the metallic surface of the fire-box, over the exterior of which the air to be heated is passed on its way to usual registers.

25 My invention to be herein described is applicable, with but slight changes in the shape of the basket or pot, to any usual furnace, stove, hot-water heater, or heating or cooking apparatus.

30 The basket or pot herein to be described will contain suitable incombustible material—such as pieces of fire-brick, stone, asbestos, &c.—and the wall of the basket or pot will have suitable openings or spaces for the gas
35 to pass outwardly, so that the gas may be put into the flame entirely about the basket or pot, at its periphery as well as at its top. I have provided means by which to easily ignite the gas let into the basket or pot.

40 To change a furnace, stove, hot-water heater, or any heating or cooking apparatus and adapt it to burn gas instead of coal, I have only to put my improved basket or pot in position in the usual fire-box and connect it
45 up with a pipe to supply gas, and preferably other pipes in which gas and air will be mixed in proper or desired quantities to be burned without the formation of soot or smoke, the mixing of the gas and air being after the manner of any of the usual forms of so-called
50 "Bunsen burners."

Figure 1 shows a section in broken portion

of a furnace with my improved basket or pot in position, and Fig. 2 is a top view of the basket detached.

55 The base A, sustaining the ash-pit casting B, the fire-box C, supported by it, said fire-box in turn sustaining the usual combustion-chamber D', (but partially shown,) the outside shell or casing D, surrounding the fire-box and combustion-chamber and leaving a space E,
60 through which the air to be heated may pass to be conducted to any usual register, and the grate F are and may be all substantially as usual in furnaces.

65 If the fire-box of the coal-burning furnace which it is desired to convert into a gas-burning furnace is lined with fire-brick or other lining, I prefer to remove such lining, and also, preferably, I may remove the grate. Inside this usual fire-box, of whatever form or
70 shape, I place my improved basket or pot G, it being preferably shaped externally to correspond with the shape internally of the fire-box.

75 My improved basket or pot is composed, preferably, of a bottom plate *a*, having an extended foot or ring *b* and a series of upright bars *c*, united at their upper ends by means of a suitable circular casting or connecting-
80 ring *d*. Preferably the ring *b* will be extended outwardly to touch, substantially, the wall of the usual fire-box C without its lining, so that air may not enter the space between the exterior of the basket and the wall of the fire-
85 box. The bottom plate *a* may have a greater or less number of inlet pipes or openings *e* to admit not only gas, but atmospheric air, said inlet-pipes constituting the mixing-chamber.

90 The gas will be led from a suitable street pipe or main into a suitable feeder *f*, herein shown made as a ring, it being represented as provided with several gas-delivery pipes or burners *g*, which terminate at or near the lower ends of the pipes *e*, so that the gas may
95 be mixed with atmospheric air in the pipes *e* and be delivered from the pipes *e*, suitably mixed, into the incombustible material *h*, occupying the space of the basket or pot.

100 The basket or pot herein shown has a series of vertical openings between the adjacent bars, separated as represented best in Fig. 2; but instead of long slots, as represented, I may provide the basket with openings of any

suitable shape, the openings being of such shape as to let the gas escape through the walls of the basket to its exterior, and, preferably, there will be left a space between the exterior of the basket and the fire-box. To ignite the gas entering the basket proper, to avoid any liability of damage or explosion I have provided the furnace shown with a gas-lighting pipe *m*, it being led through the casing D and a pipe D² across the chamber E and into the fire-box C, it being preferably turned around the fire-box as a ring. This ring-shaped pipe, as well as the extension between the fire-box and the outer casing D, will have a series of holes made close together, so that when the cock *m*² in the pipe and in communication with a suitable gas-supply is opened the pipe *m* will be filled with gas, and the person using the furnace will ignite the gas at the point *m*¹ in one of the holes made in said pipe, and the flame will follow along said pipe completely about the basket, and when the gas is so ignited about the basket the attendant will let the gas into the feeder *f*, said gas entering the incombustible material and passing through it and being lighted instantly.

The drawing Fig. 1 shows the flame bursting out through the sides and at the top of the basket.

It will be obvious that the basket may be readily changed and given the shape of any fire-box in which it may be desired to place the basket in order to convert the article containing the fire-box into a gas-burner rather than a coal-burner.

The dotted lines in Fig. 2 show the position that the pipe *m* will occupy with relation to the basket.

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

1. A basket, a plate completely closing the

bottom thereof, and having portions thereof projecting beyond the walls of the basket adapted to support a gas-lighting pipe, a series of inlet-pipes passing through said plate and into said basket, the walls of said basket being provided with openings for the passage of gas, substantially as described.

2. In combination a fire-box, a basket adapted to contain incombustible material and fitted to said fire-box to provide a combustion-space between said box and basket, a plate completely closing the bottom of the basket and fire-box and a series of air and gas inlet pipes passing through said plate, substantially as described.

3. In combination a fire-box, a basket provided with air and gas inlet pipes and adapted to contain incombustible material said basket being fitted to said box to provide a space between the walls of the fire-box and basket, the walls of said basket having openings for the passage of gas, and a gas-lighting tube surrounding the basket between the walls of the fire-box and basket, substantially as described.

4. In combination a fire-box, a basket having open side walls and adapted to contain incombustible material, a plate adapted to close the bottom of the fire-box and basket, air and gas inlet pipes passing through said plate, said fire-box and basket having a space between their respective walls, whereby the flame produced by the burning gas impinges upon the inner wall of the fire-box and gas-lighting pipe communicating with said space, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CHARLES L. RIDGWAY.

Witnesses:

GEO. W. GREGORY,
MARGARET A. DUNN.