

(No Model.)

F. ROBBIN.
FURNACE.

No. 581,084.

Patented Apr. 20, 1897.

Fig. 1.

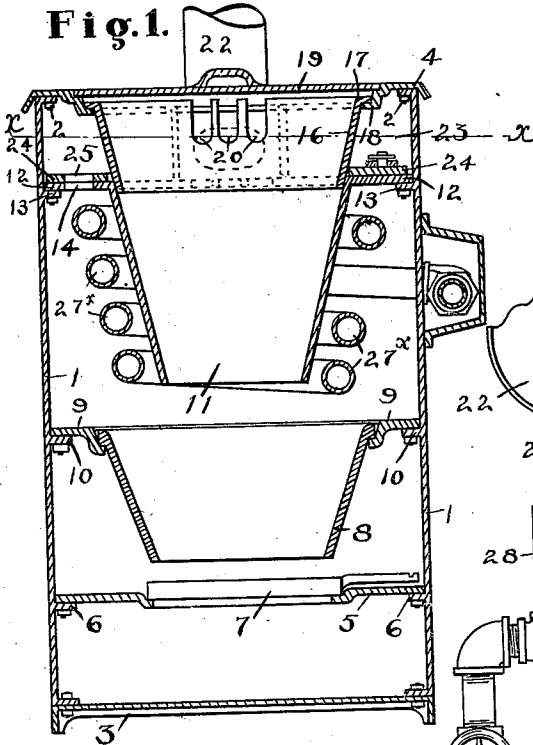


Fig. 2.

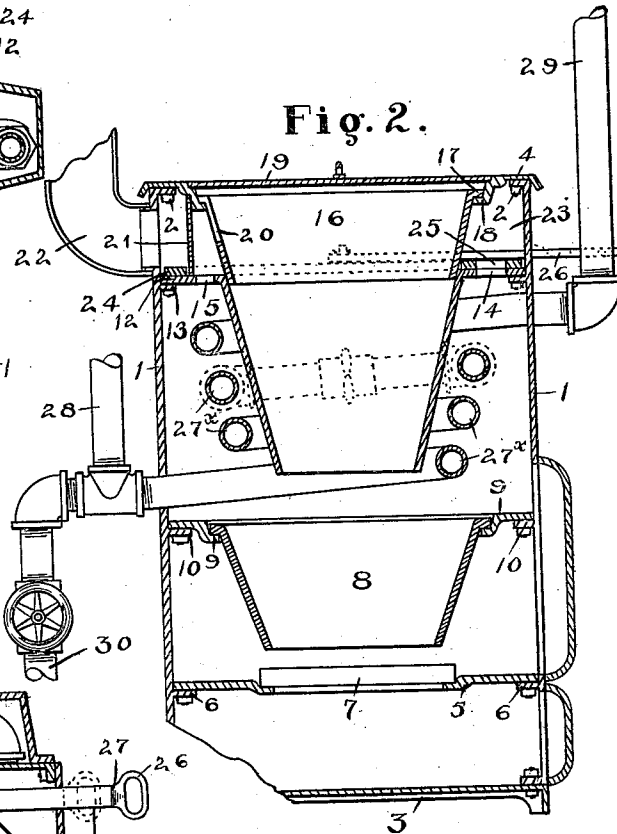
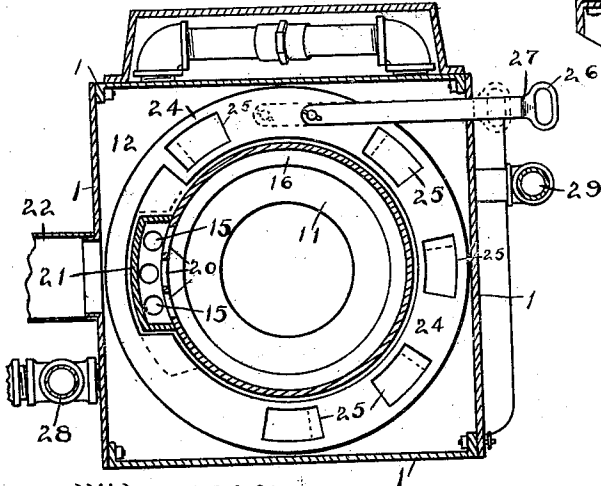


Fig. 3.



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UNITED STATES PATENT OFFICE.

FREDERICK ROBBIN, OF ROCHESTER, NEW YORK.

FURNACE.

SPECIFICATION forming part of Letters Patent No. 581,084, dated April 20, 1897.

Application filed April 27, 1896. Serial No. 589,271. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK ROBBIN, of Rochester, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Furnaces; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, and to the reference-numerals marked thereon.

My present invention has for its object to provide an improved furnace or stove so constructed and arranged as to burn fuel economically, be capable of easy regulation, and simple and inexpensive in construction; and to these and other ends it consists in certain arrangements and combinations of parts, all as will be hereinafter fully described, and the novel features pointed out particularly in the claims at the end of this specification.

In the drawings, Figure 1 is a vertical sectional view of a furnace constructed in accordance with my invention; Fig. 2, a similar view taken at right angles to the plane of Fig. 1; Fig. 3, a horizontal view on the line *xx* of Fig. 1.

Similar reference-numerals in the several figures indicate similar parts.

The body or casing of my furnace is in the present embodiment of rectangular form, composed of the plates 1 1 1 1, connected by suitable lugs and bolts 2 at the corners, as shown, and the bottom 3 and the top plate 4.

5 indicates a plate or frame supported upon lugs or flanges 6 on the side plates 1 and having the grate 7 movable in it.

8 is the fire-pot, suspended from a plate or ring 9, also supported on flanges 10 on the side plates.

11 indicates the lower section of the coal-reservoir, preferably formed integral with or, if desired, resting upon a horizontal plate 12, supported upon lugs or flanges 13 on the sides of the casing, said plate having apertures 14 therein around the reservoir and at the rear thereof a series of smaller apertures 15.

16 indicates the top section of the reservoir tapering, as shown, with its lower end entering the upper end of the reservoir 11 and provided at its upper periphery with a flange 17, supported upon the lugs or flanges 18 on the under side of the top plate 4.

19 indicates the cover of the reservoir, preferably flush with the top plate when in position.

The rear portion of the reservoir-section 16 is provided with small apertures 20, and extending around the outside of this section and covering these apertures and also the apertures 15 in the plate 12 is an apron or plate 21, preferably supported on the plate 12 and forming a gas-passage from the upper end of the reservoir to the casing below the plate 12. The smoke-pipe 22 is connected to one of the plates 1 of the casing and communicates with the chamber 23, between the top plate and plate 12 and preferably back of the plate 21, as shown.

Surrounding the upper section 16 of the reservoir and supported upon the plate 12 is a rotary annular ring or damper 24, having a series of apertures 25, adapted at times to coincide with the apertures 14 in the plate 12, and provided with an operating-handle 26, capable of manipulation from the exterior of the casing to rotate the annular damper-plate and open or close, more or less, the apertures in the plate 12. A stop 27 on the handle serves to limit the movement of the damper and prevent the entire closing of said apertures, or other suitable stops could be employed, if desired.

27^x indicates a coil of pipe arranged around the reservoir for heating the water in a hot-water heating system, 28 indicating the supply and return pipe communicating with the lower end of the coil, 29 the flow-pipe connected with the upper end, and 30 the blow-off pipe. When the coil to be applied in the furnace is longer than can be made of a single length of pipe, I preferably pass the ends of the two pipes forming the coil out, as shown in Fig. 3, and connect them by an ordinary coupling outside the casing, this enabling me to more readily repair leaking joints and preventing damage to the coupling by intense heat.

When the furnace is in use, the smoke and products from the fire pass up around the outside of the reservoir, through the apertures 14 into chamber 23, and thence to the smoke-pipe, the annular damper serving to regulate the draft, as will be understood. The gas from the top of the reservoir passes through

the apertures 20, thence down beneath plate 12, and with the smoke and other products through apertures 14 back into chamber 23, said apertures 14 being always slightly open.

5 From this construction it will be seen that the coal in the reservoir is not consumed when the damper 24 is closed, but any gas evolved must be returned below the diaphragm or dividing-plate and be consumed,
10 so as to assist in heating the coil, and all the heat obtained by combustion is necessarily utilized.

A furnace thus constructed is simple and cheap and by the manipulation of the single
15 damper may be regulated to a nicety.

I claim as my invention—

1. In a furnace, the combination with the casing having a smoke-pipe and the fuel-reservoir, of the fire-pot, the water-pipe coil 27^x
20 encircling the reservoir, the annular dividing-plate 12 extending around the reservoir having apertures 14 and forming the chamber 23 above the plate into which the smoke-pipe enters, whereby all the heated products and
25 gases will be deflected upon the coil, substantially as described.

2. In a furnace, the combination with the casing having the smoke-pipe aperture and the fuel-reservoir, of the fire-pot, the water-
30 heater coil around the reservoir, the dividing-plate around the reservoir having the apertures therein and arranged between the coil and smoke-pipe aperture, and a gas-passage

extending from the upper portion of the reservoir to beneath the dividing-plate, whereby
35 all the gases and products will be deflected upon the coil, substantially as described,

3. In a furnace, the combination with the casing having the smoke-pipe aperture, the dividing-plate beneath it having the aper-
40 tures and the lower fuel-reservoir section connected therewith, of the fire-pot, the upper fuel-reservoir section supported by the casing and entering the lower fuel-reservoir section, the rotary damper on the dividing-plate
45 having the apertures and the water-heating coil around the lower reservoir-section and beneath the dividing-plate, substantially as described.

4. In a furnace, the combination with the casing having a smoke-aperture, and fire-pot, of the fuel-reservoir, the dividing-plate
50 around the reservoir beneath the smoke-pipe aperture dividing the casing into two chambers, said plate having a series of apertures
55 around the reservoir, a gas-passage leading from the upper portion of the reservoir beneath the dividing-plate, and the rotary damper encircling the reservoir resting upon the dividing-plate and having apertures coop-
60 erating with those in said plate, substantially as described.

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Witnesses:

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