(No Model.)

W. S. ESSICK.

HEATER.

No. 458,385. Patented Aug. 25, 1891.

Fig. 1.

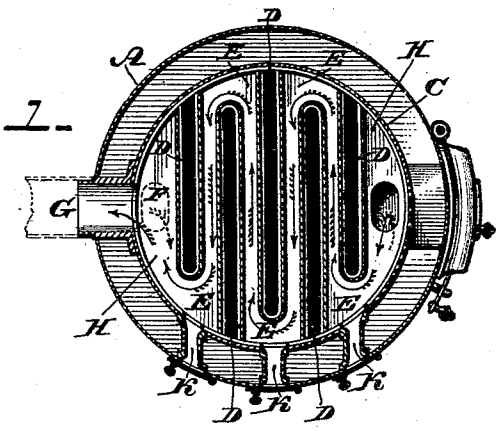
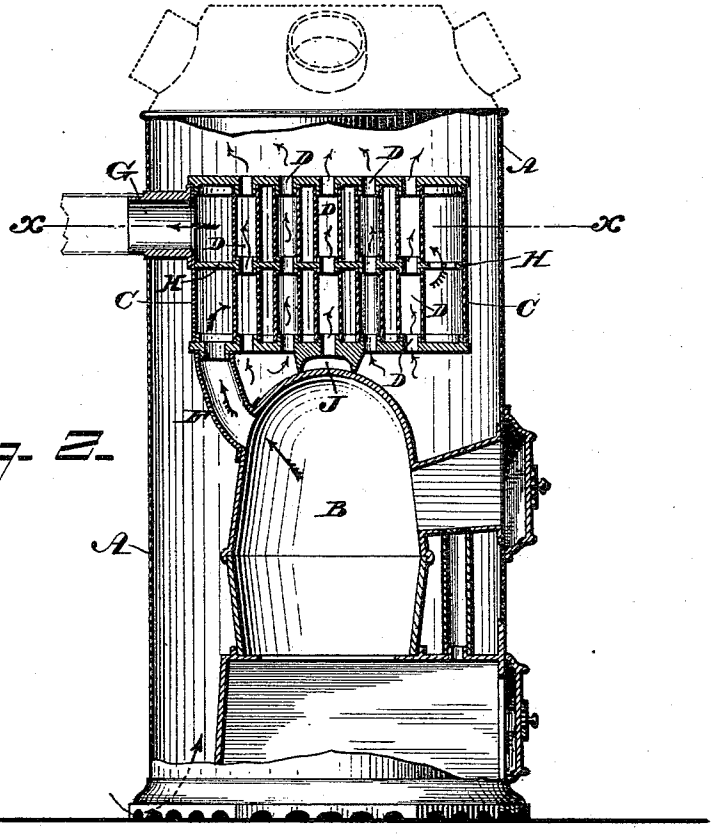


Fig. 2.



WITNESSES

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WILLIAM S. ESSICK, OF ROYER'S FORD, PENNSYLVANIA.

HEATER.

SPECIFICATION forming part of Letters Patent No. 458,385, dated August 25, 1891.

Application filed September 16, 1890. Serial No. 365,153. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM S. ESSICK, a citizen of the United States, residing at Royer's Ford, in the county of Montgomery and State of Pennsylvania, have invented a new and useful Improvement in Heaters, which improvement is fully set forth in the following specification and accompanying drawings.

My invention consists of a heater containing a drum which is in communication with the fire-pot, and provided with circuitous passages, thus providing a large heating-surface for the air within the casing.

Figure 1 represents a horizontal section on line *x x*, Fig. 2, of a heater embodying my invention. Fig. 2 represents a vertical section thereof.

Similar letters of reference indicate corresponding parts in both the figures.

Referring to the drawings, A designates the casing of a furnace, and B the fire-pot thereof.

C designates a drum having flues D, which open into the casing, so that air admitted into the latter may pass through said flues and be heated by the same. Each wall of the flues joins the adjacent portion of the periphery of the drum and extends to nearly the opposite portion of said periphery, thus leaving a space between the flue and said opposite portion, and the spaces alternate, so that a zigzag or circuitous passage E is formed in the drum, as will be seen in Fig. 1. One end of said passage is connected by a pipe or branch F with the fire-pot B, and the other end with the smoke-flue or collar G.

The operation is as follows: The products of combustion leave the fire-pot B, pass through the pipe F, and enter the drum and transverse passage E, thus highly heating the flues D, whereby the air admitted into the casing and entering the flues is subjected to the action of the flues, the effect of which is evident. The products of combustion leave the drum and escape at the flue G. The exterior of the drum also provides means for heating the air, and thus an effective heating device is presented, the same being auxiliary to the fire-pot and casing in producing large volumes of hot air, which is admitted into the dome or cap of the casing, and from thence directed to the place of service. The drum is divided by a horizontal diaphragm H, forming upper and lower sections, which are in communication at one end, so that the products of combustion first traverse one section and then enter the other before escaping from the drum, their passage being zigzag in each section, this construction producing an increased air-heating action. The drum is provided on its bottom with a foot J, which rests on the dome of the fire-pot for supporting said drum, the foot being recessed and perforated so as to be in communication with the adjacent flue D to permit air thereon to enter and pass through the same. Connected with the wall of the drum and the casing are flues K, which open into the passage E, whereby the latter may be cleansed when so desired, said flues having doors for closing the same.

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

A drum for a heater, consisting of an inclosed casing with a series of flues therein for heated air and extending through the same vertically and diametrically alternating to have the open ends thereof abut against opposite sides of the casing, the walls thereof forming other vertical flues within the casing for circulation of products of combustion, which are closed at bottom and top, an interposed diaphragm centrally dividing said drum and having openings therein in the heated-air flues and closed in the flues for the circulation of the products of combustion, except at one end, to thereby provide a tortuous passage, said drum having a lower foot, a bottom ingress-opening adjacent to the periphery of the drum, and an outlet-opening above the diaphragm, substantially as described.

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Witnesses:
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