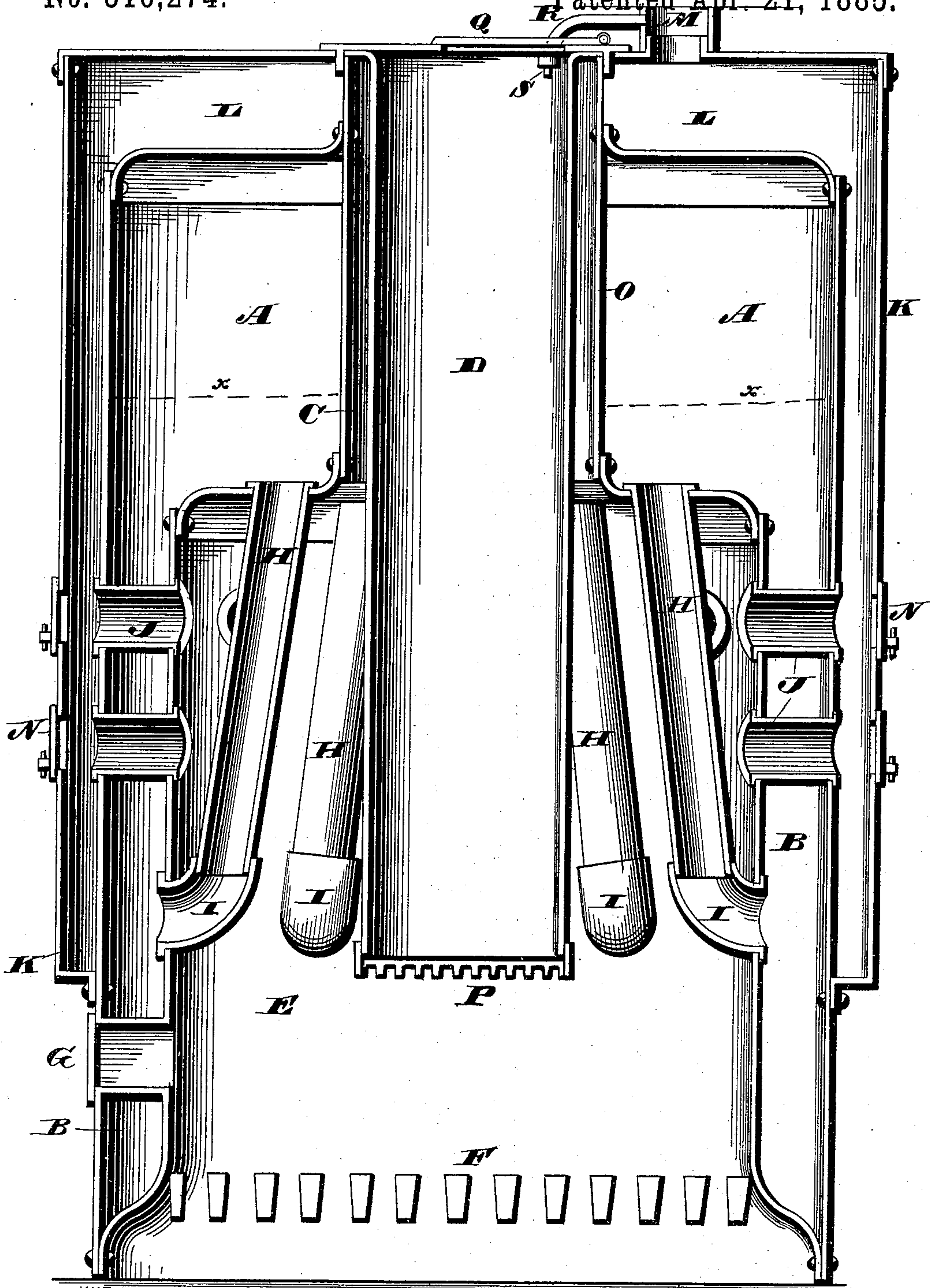


(No Model.)

J. W. LATIMER.
STEAM HEATING BOILER.

No. 316,274.

Patented Apr. 21, 1885.



WITNESSES

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UNITED STATES PATENT OFFICE.

JOHN W. LATIMER, OF NEWARK, OHIO.

STEAM-HEATING BOILER.

SPECIFICATION forming part of Letters Patent No. 316,274, dated April 21, 1885.

Application filed January 3, 1883. (No model.)

To all whom it may concern:

Be it known that I, JOHN W. LATIMER, of Newark, in the county of Licking and State of Ohio, have invented certain new and useful

5 Improvements in Steam-Heating Boilers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

10 My invention relates to steam-heating boilers, the object of the invention being to produce an improved device of this character, which shall combine simplicity and cheapness of construction with durability and efficiency

15 in use.

With these objects in view my invention consists in certain details of construction and combinations of parts, as will be hereinafter described, and pointed out in the claims.

20 The accompanying drawing illustrates a vertical section of a steam-heating boiler embodying my invention.

The generating-chamber A and the water-chamber B of my improved apparatus are embodied in a structure of any approved form and construction, but preferably cylindrical in general contour, as herein shown. The said generating-chamber A is provided with a central opening, C, which receives the upper end

25 of the fuel-magazine D, while the water-chamber B is arranged to inclose the combustion-chamber E, in which the grate F is located, access being had to the said grate through a door, G, formed in the wall of the water-chamber.

30 For the purpose of increasing the area of water exposed to the action of the fire, a series of inwardly-inclining or oblique water-pipes, H, connecting the generating and the water chambers, are grouped, substantially in the manner shown, in the upper portion of the combustion-chamber. The upper ends of the said pipes terminate in the bottom of the generating-chamber, which also constitutes

35 the top of the combustion-chamber, while the lower ends of the pipes are screwed or otherwise fitted into elbows I, attached to or made integral with the inner wall of the water-chamber and projecting inwardly therefrom.

40 By constructing and arranging the pipes in the manner described it is rendered possible

to remove any of them for the purpose of replacing or repairing them without disturbing those remaining or any portion of the apparatus.

55 Provision is made for the draft of the combustion-chamber by a double row of flues, J, located one above the other and directly back of the water-pipes H. In virtue of this arrangement of the pipes and flues, the caloric current will in seeking the flues be deflected upon and around the pipes, whereby superior heating effects are produced, and inasmuch as the caloric current is drawn away from the magazine D the coking of its contents is ob-

60 viated. The flues will also operate to heat the water in the water-chamber.

The upper portion of the structure, embodying the generating and water chambers, is inclosed by a shell, K, the lower edge of which is bolted or otherwise attached to the outer wall of the water-chamber. The chamber L thus inclosed constitutes an extension of the flues J, and conveys the caloric current to the flue M, which leads to the chimney, the current operating in its passage through the said chambers to heat the outer walls of the water-chamber and the outer walls and the crown-sheet of the generating-chamber.

70 Doors N, located in the shell K and registering with the flues J, render the same and the chamber L accessible for the removal of sooty accumulations, and for other purposes. They also fulfill the office of dampers for regulating the draft of the fire.

85 A sleeve, O, constituting the inner wall of the generating-chamber and extending above it to the top of the shell K, forms a bearing for the flanged upper end of the fuel-magazine D, the lower end of which is provided with a removable serrated rim, P. The plan of suspending the fuel-magazine enables it to be revolved as need be by engaging the teeth of the rim P with a poker, and to be removed, if necessary, without disturbing other parts of the apparatus.

90 A door, Q, hinged to the upper portion of the shell K, is arranged to cover the upper end of the magazine.

A pipe, R, located as shown, and connecting the flue M and the magazine, is designed to conduct the gases generated in the fuel with

100

which the magazine is charged to the said flue, the escape of such gases being regulated by a valve, S, located in the lower end of the pipe.

5 The operation of the apparatus is conducted with a considerable elevation of water in the generating-chamber—say to about the level of the broken line *x*, as indicated in the drawing, the steam generated being conveyed away for use through conduits not herein shown.

10 By constructing a steam-heating boiler as herein set forth the maximum amount of heat is derived from a given quantity of fuel, and the expense and care attendant upon running the apparatus are reduced to the minimum.

15 I would have it understood that I do not limit myself to the exact construction and arrangement of parts herein shown and described, but hold myself ready to make such changes and alterations as fairly fall within the spirit and scope of my invention.

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

25 1. The combination, with the combustion-chamber, the steam-chamber, the water-jacket surrounding the combustion-chamber and opening at the top into the steam-chamber,

and the heat-flues leading from the side walls of the combustion-chamber through the water-jacket to a common flue, of the water-legs 30 connecting the water-jacket with the steam-chamber and passing through the combustion-chamber, and a fuel-magazine the lower end of which terminates below the water-legs, substantially as set forth.

35 2. A steam-heating boiler consisting of three shells secured one within the other to form the chambers A, B, E, and L, flues connecting the chambers E and L, inclined water-legs connecting the chambers A and B and 40 passing abreast of the inner ends of the flues, a magazine suspended from the outer shell and extending some distance within chamber E, a grate arranged in chamber E, and a passage through chamber B to afford access to 45 chamber E above the grate.

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

JOHN W. LATIMER.

Witnesses:

FRANK DOWNEY,
E. S. FRANKLIN.