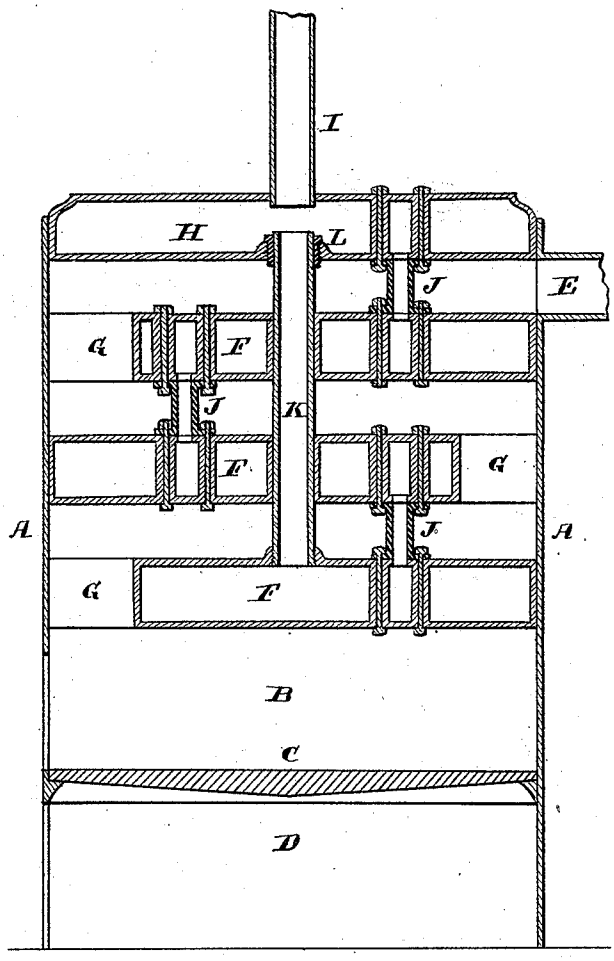
(No Model.)

D. F. MORGAN.

HOT WATER HEATING BOILER.

No. 519,133. Patented May 1, 1894.



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HOT-WATER HEATING-BOILER.

SPECIFICATION forming part of Letters Patent No. 519,133, dated May 1, 1894.

Application filed August 9, 1892. Renewed February 12, 1894. Serial No. 499,978. (No model.)

To all whom it may concern:

Be it known that I, DOCTOR F. MORGAN, a citizen of the United States, residing at Akron, in the county of Summit and State of Ohio, have invented a certain new and useful Improvement in Hot-Water Heating-Boilers, of which the following is a specification.

My invention has relation to improvements in that class of hot-water heating boilers in which a series of hollow horizontal shells placed, slightly separated, one above the other, and a hollow dome above the upper shell from which the outlet or flow pipe leads to the radiators, contain the water, and are inclosed in a surrounding case, either hollow or solid, which also constitutes the fire pot or furnace in which the grate is supported. An objection has been noted in this class of boilers, that the entire mass of water in the boiler must be heated before a noticeable current commences from the boiler through the flow pipe to the radiators, and consequently in starting up the fires, a considerable time elapses before any heat is communicated to the radiators, and as a second consequence a greater amount of fuel is required than would be necessary, when but little heat is required from the radiators, if a successful current could be started and maintained with a lower temperature in the boilers.

The object of my invention is to overcome this objection by providing a device whereby a current will be started immediately on lighting the fire, thereby at once communicating heat to the radiators, and maintaining it with a slight consumption of fuel, when great heat is not desired.

To the aforesaid object my invention consists in the peculiar and novel construction, arrangement and combination of parts hereinafter described and then specifically pointed out in the claims, reference being had to the accompanying drawing, forming a part of this specification.

The accompanying drawing, in which similar reference letters indicate like parts, represents a simple form of a boiler of the class designated, shown in vertical central section, and embodying my invention, only so much being shown as will illustrate the application of the invention.

In the drawing, A is the inclosing case, B the fire pot or furnace, C the grate, D the ash pit, and E the uptake flue. Inside this case A, are supported a series of hollow shells F, usually circular in form, each having a recess G, at one side, to permit the products of combustion from the fire to ascend, and alternating in position in alternate disks. Above these shells F, is an upper shell H, which I call the dome, from which a discharge or flow pipe I, leads to the radiators; and circulating pipes J, J, J, connect the interiors of the shells and dome. A single pipe K, is screwed into the upper face of the lower shell F, and passing through the two succeeding shells enters the dome H, through its lower face, where it is secured by a screw bushing L, directly below and in alignment with the flow pipe I. Thus the lower end of the pipe K, is directly above the lower face of the lower shell F, which constitutes the crown sheet of the boiler, and its upper end directly below the flow pipe I, so that an upward current through the pipe K, will, the water in the boiler, pipes and radiators being in equilibrium, by its impact start a current in the pipe I, and thence through the system of pipes and radiators. The result of this arrangement is that immediately on starting the fire, the water in the lower shell is first heated and at once causes a current to ascend through the pipe K, and thence through the system of pipes and radiators, as just described, thereby commencing at once to communicate heat to the radiators, and this is continued with a low fire whose effect would be scarcely perceptible were it required to heat the entire mass of water directly.

It is apparent that this invention may be used with any kind of hot water heating boiler, where the conditions of construction permit of its application.

I claim as my invention—

1. In a hot-water heating boiler of the class designated, the combination with the upper and lower sections, of a continuous pipe uniting and in communication only with the interiors of said sections, having its lower end directly above the crown-sheet of the lower section and its upper end near, and in alignment with, the flow-pipe, substantially as

shown and described and for the purpose specified.

2. In a hot-water heating boiler of the class designated, the combination with the hollow shells, and the dome and its flow-pipe, of a continuous pipe uniting the interiors, and in communication only with the lower shell and dome, through the upper face of the former and lower face of the latter, its upper end being in alignment with the flow-pipe, substantially as described.

3. In a hot-water heating boiler of the class designated, the combination with the lower shell, the dome and its flow-pipe, and the intermediate shells having openings for its passage, of a continuous pipe uniting the interiors only of the lower shell and dome, and passing through the openings in the intermediate shells, substantially as shown and described.

In testimony that I claim the above I hereunto set my hand.

DOCTOR F. MORGAN.

In presence of—
C. P. HUMPHREY,
D. C. GILLETT.