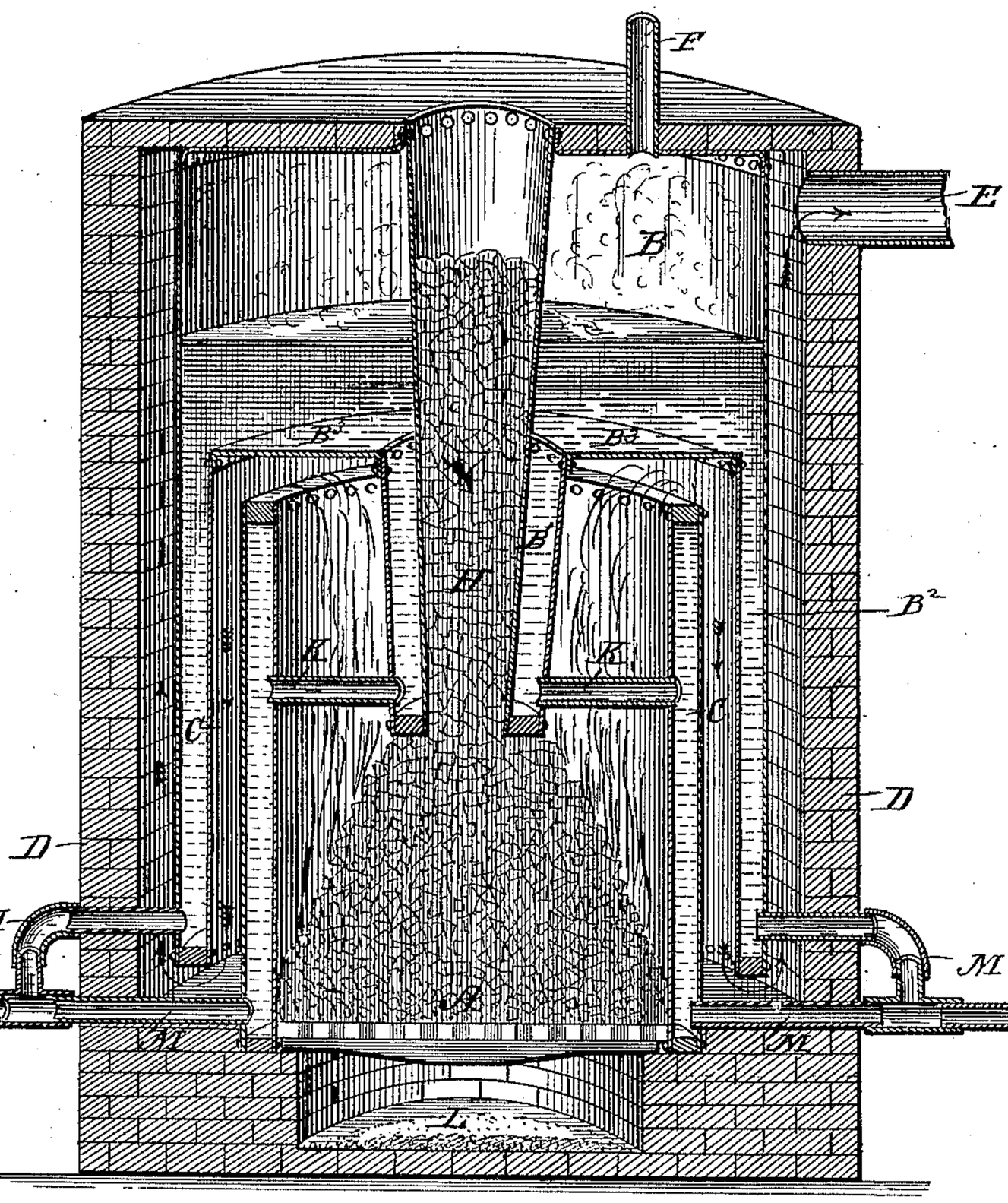
(No Model.)

M. E. HERBERT.

BASE BURNING STEAM BOILER.

No. 301,366. Patented July 1, 1884.



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MICHEAL E. HERBERT, OF ST. JOSEPH, MISSOURI.

BASE-BURNING STEAM-BOILER.

SPECIFICATION forming part of Letters Patent No. 301,366, dated July 1, 1884.

Application filed March 12, 1884. (No model.)

To all whom it may concern:

Be it known that I, MICHEAL E. HERBERT, a citizen of the United States, residing at St. Joseph, in the county of Buchanan and State of Missouri, have invented certain new and useful Improvements in Base-Burning Steam-Boilers, of which the following is a description.

The figure is a vertical central section.

The object of my invention is to provide a good base-burning steam-boiler which shall not be complicated by a great number of flues, but which shall still have a great extent of heating-surface.

It consists, mainly, in an upright boiler having at its lower side a downwardly-projecting annular chamber at its outer periphery, and another similar annular chamber at the point where it encompasses the fuel-magazine, in combination with a separate annular chamber set between the annular chambers of the boiler proper, and connected to them by circulating-pipes, which separate annular chamber also forms the fire-pot, from which the smoke and products of combustion pass upwardly between the inner annular chamber of the boiler proper and the separate annular chamber, and thence over the separate annular chamber and down between it and the outer annular chamber of the boiler proper, thence underneath the lower edge of the latter and up between its exterior surface and an inclosing brick wall or casing, as hereinafter more fully described.

In the drawing, A represents the fire-pot grate, supported upon brick-work above the ash-pit L.

B is the boiler proper, which is of the upright type, and at its lower end is formed with two annular hot-water chambers, B′ and B^2, one of which, B′, surrounds the fuel-magazine H and extends down to the lower end of the same, and the other of which extends downwardly from the outer periphery of the boiler, the two annular chambers being connected at the top by the crown-sheet B^3.

C is the separate annular chamber, which is supported upon the brick foundation and extends up between the annular chambers B′ B^2 is the boiler proper, but stops short of the crown-sheet B^3. This annular chamber C is connected by horizontal pipes K with the inner chamber, B′, of the boiler, and is connected with the outer chamber, B^2, by the external elbowed pipes, M, which pipes permit a free circulation of water through the chamber C.

D is an outer casing or brick wall, which surrounds the boiler, leaving a space between it and the boiler for the escape of the smoke as it passes to the smoke-pipe E.

F is a steam-pipe for carrying the steam generated in the boiler to the desired point of utilization.

With the construction thus described the flames and products of combustion pass up first between the annular chambers B′ and C, acting upon their walls and the pipes K, then turn over the top of chamber C, acting upon the crown-sheet B^3, then, passing downwardly between the chambers C and B^2, act upon their adjacent surfaces, then turn beneath the chamber B^2 and pass upwardly between the same and the brick wall, and pass out at the smoke-pipe E, thus affording a tortuous passage to the flames and a great exposure of boiler-surface, which secures very high steaming capacity without the use of a complicated system of tubes.

Having thus described my invention, what I claim as new is—

1. A base-burning steam-boiler having a central fuel-magazine through it, extending to and attached to the top of the boiler, with a downwardly-projecting annular water-chamber, B′, around it, and a pendent annular water-chamber, B^2, at its outer periphery, in combination with the separate annular water-chamber C, interposed between the chambers B′ and B^2, and connected with the same by circulating-pipes, substantially as shown and described.

2. The combination of boiler B, having central magazine, H, and annular downwardly-projecting chambers B′ B^2, the separate annular chamber C, with pipes K and M, and the brick wall or casing D, as and for the purpose described.

MICHEAL E. HERBERT.

Witnesses:
CHARLES J. HERBERT,
CHARLES F. ROCK.