

(No Model.)

J. O. MAGUIRE.
STEAM BOILER.

No. 444,959.

Patented Jan. 20, 1891.

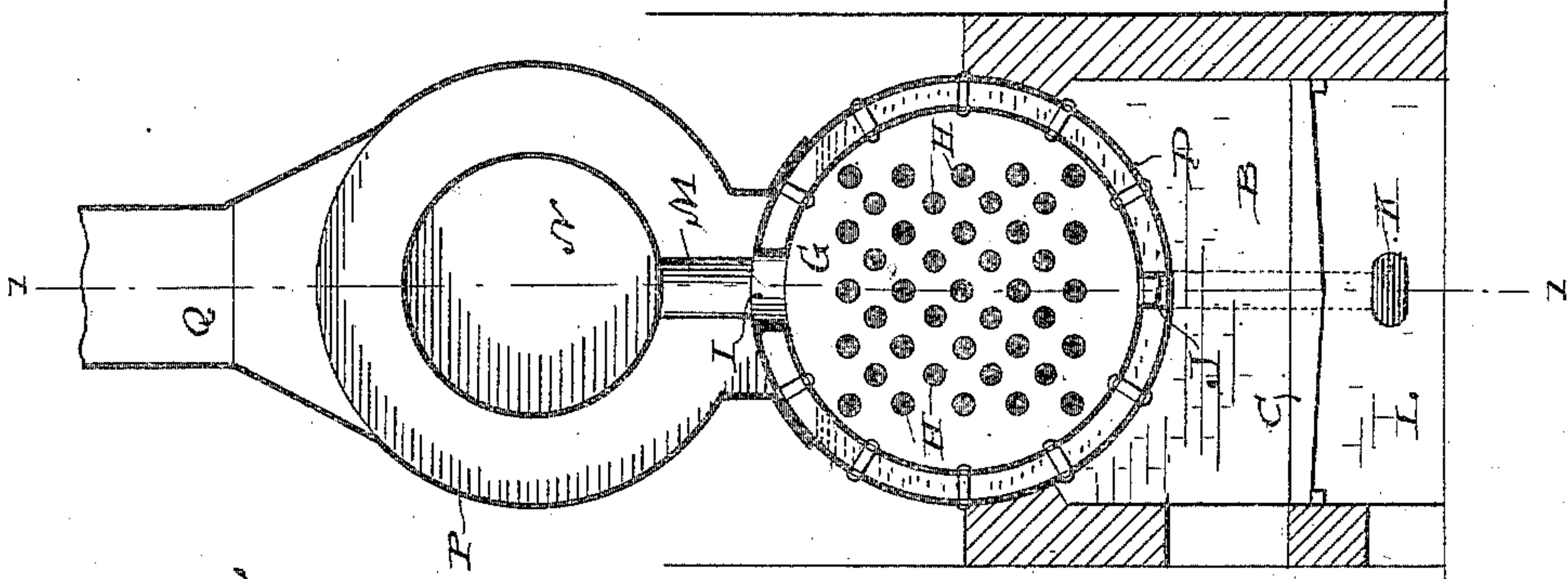


Fig. 2.

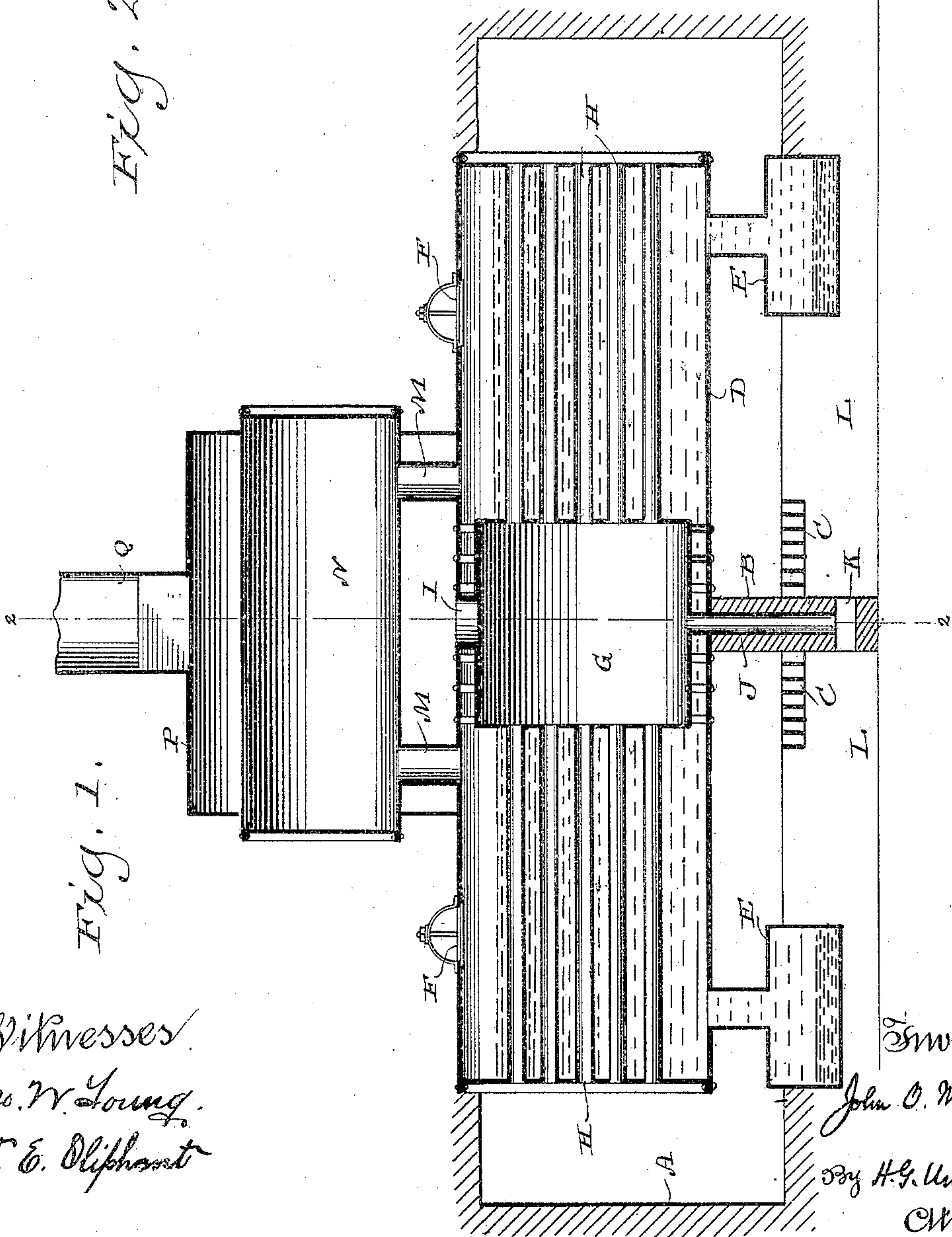


Fig. 1.

Witnesses
Geo. W. Young.
N. E. Oliphant

Inventor
John O. Maguire
By H. G. Underwood
Attorney

UNITED STATES PATENT OFFICE.

JOHN O. MAGUIRE, OF MILWAUKEE, WISCONSIN.

STEAM-BOILER.

SPECIFICATION forming part of Letters Patent No. 444,959, dated January 20, 1891.

Application filed October 11, 1890. Serial No. 367,805. (No model.)

To all whom it may concern:

Be it known that I, JOHN O. MAGUIRE, a citizen of the United States and a resident of Milwaukee, in the county of Milwaukee, and in the State of Wisconsin, have invented certain new and useful Improvements in Steam-Boilers; and I do hereby declare that the following is a full, clear, and exact description thereof.

My invention consists in certain peculiarities of construction and combination of parts to be hereinafter described with reference to the accompanying drawings and subsequently claimed.

In the drawings, Figure 1 represents a vertical longitudinal section of my device, the section being taken on line 1 1 of the succeeding figure; and Fig. 2, a vertical transverse section of the same on line 2 2 of Fig. 1.

Referring by letter to the drawings, A represents a furnace-casing, provided with a central longitudinal wall B and grates C on opposite sides of the same. Supported within the furnace-walls is a cylinder D, the latter being shown as connected to mud-drums E, one of the latter being in each compartment of said furnace, the dividing line of the compartments being the central wall above named, and the top of the cylinder is provided at each end with a covered man-hole F, this construction being clearly illustrated by Fig. 1. Centrally arranged in the cylinder D and secured thereto by means of bolts or other suitable means is a chamber G, the latter being of such diameter as to leave a water-space between it and said cylinder. Extended through the heads of the cylinder D and inclosed chamber G are tubes H, and said chamber is provided with vertical flues I J, one of the latter being extended up through the top of the cylinder and the other down through the central wall B of the furnace to connect with a transverse opening K in said wall, each end of this opening being in communication with the ash-pit L of a corresponding compartment of said furnace.

The cylinder D is connected, by means of flues M, with a parallel steam-dome N, and a casing P is secured to said cylinder to surround the dome, this casing being provided with a smoke-flue Q.

In the operation of my invention products of combustion from the furnace are drawn through the tubes H into the chamber G, thereby heating the water in the cylinder. Steam generated in the cylinder ascends through the flues M into the dome N, from which it may be distributed by a system of pipes, as is common in the art. The products of combustion, drawn through the flues into the chamber, ascend upward through the flue I of said chamber into the casing P, and on their way to the smoke-flue Q surround the steam-dome to keep the latter hot and practically superheat the steam. When only a comparatively small amount of steam is needed, fire is kept up in but one of the furnace-compartments and changed from one to the other of these compartments at such intervals as may be desirable in order to equalize the action of the fire throughout the entire length of the cylinder. When a greater amount of steam is required, fire is kept up in both compartments of the furnace, and in such an instance the meeting of the flames drawn through the tubes H from opposite directions into the chamber G have a tendency to consume smoke and other products of combustion also drawn into said chamber.

Ashes, cinder, and other heavy particles drawn into the chamber G fall down through the flue J and transverse opening in the wall B into the ash-pit of the furnace. By dividing the furnace into two compartments and drawing the products of combustion in opposite directions from a common center back to the same center through the tubes I obtain a better distribution of heat with relation to the water in the cylinder than is ordinarily the case, and thereby economize in the use of fuel, while at the same time the surface of the cylinder exposed to the fire is more equally acted upon and consequently less liable to burn out in any one place.

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

1. A steam-boiler comprising a cylinder, a chamber of less diameter than the cylinder centrally arranged therein and having a flue extended up through the same, and tubes extended through the heads of the chamber and

cylinder within the latter, in combination with a furnace-casing inclosing the aforesaid cylinder and divided by a central wall into compartments, each of the latter being in communication with one set of the said tubes, substantially as set forth.

2. A steam-boiler comprising a cylinder, a chamber of less diameter than the cylinder centrally arranged therein and having a flue extended up through the same, and tubes extended through the heads of the chamber and cylinder within the latter, in combination with a furnace-casing inclosing the aforesaid cylinder, a wall arranged to divide the furnace into compartments and provided with a transverse opening having its ends communicating with the ash-pit of said furnace, and a flue leading from said chamber down through said wall to the opening in the latter, substantially as set forth.

3. A steam-boiler comprising a cylinder, a

chamber of less diameter than the cylinder centrally arranged therein and having a flue extended up through the same, and tubes extended through the heads of the chamber and cylinder within the latter, in combination with a furnace-casing inclosing the aforesaid cylinder and divided by a central wall into compartments, a steam-dome parallel to the cylinder and connected therewith by flues, a casing surrounding the steam-dome, and a smoke-flue leading from the casing, substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand, at Milwaukee, in the county of Milwaukee and State of Wisconsin, in the presence of two witnesses.

JOHN O. MAGUIRE.

Witnesses:

H. G. UNDERWOOD,
WM. KLUG.