(No Model.)

W. M. BROWN.

STEAM GENERATOR.

No. 423,664. Patented Mar. 18, 1890.

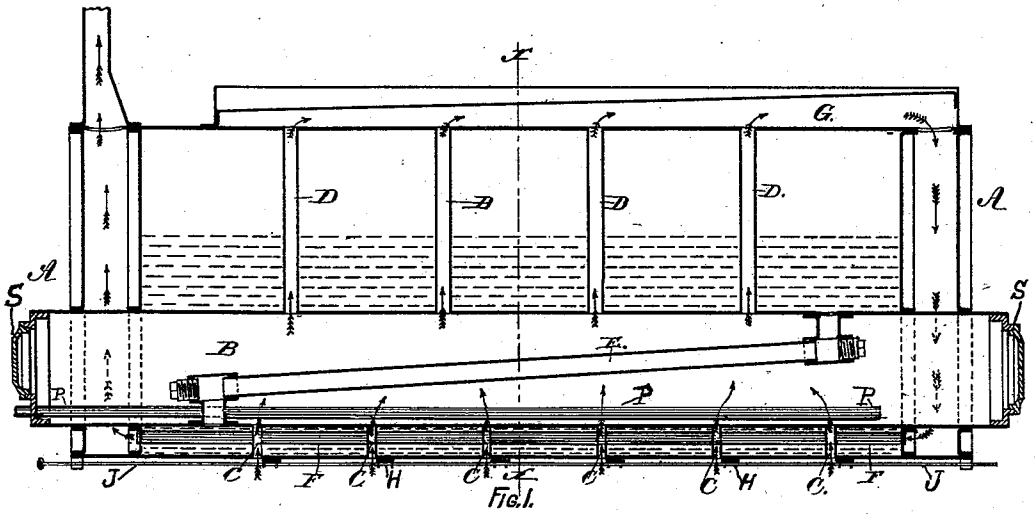


Fig. 1.

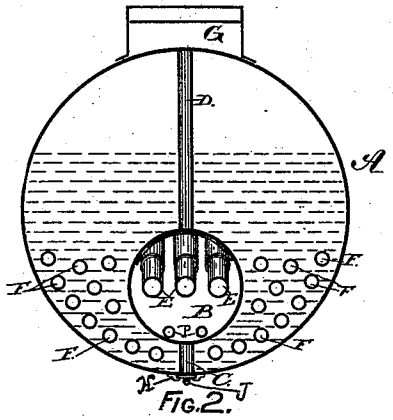


Fig. 2.

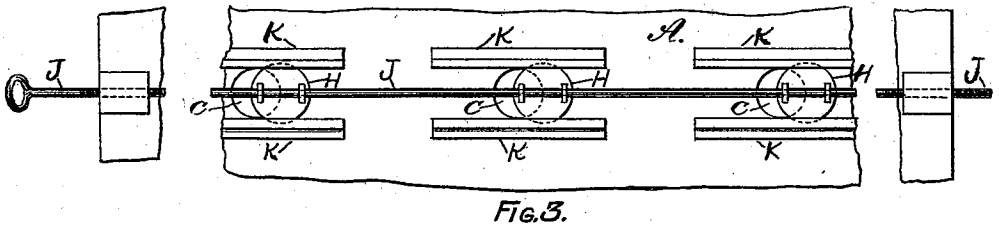


Fig. 3.

Witnesses:
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UNITED STATES PATENT OFFICE.

WALTER MORTON BROWN, OF ALBANY, NEW YORK.

STEAM-GENERATOR.

SPECIFICATION forming part of Letters Patent No. 423,664, dated March 18, 1890.

Application filed September 20, 1888. Serial No. 285,862. (No model.)

To all whom it may concern:

Be it known that I, WALTER MORTON BROWN, a citizen of the United States, residing at Albany, in the county of Albany and State of New York, have invented certain new and useful Improvements in Steam-Generators; and I do 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, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

The object of my invention is to provide a steam-boiler in which gas or oil fuel may be burned economically.

In the drawings similar figures refer to similar parts throughout the several views.

Figure 1 shows a longitudinal sectional view of my boiler; Fig. 2, a cross-sectional view taken on line X X of Fig. 1; and Fig. 3, a section of the bottom plate, showing the manner in which I preferably cause the opening C to be opened and closed.

A shows the main or outside shell of the boiler; B, the inner shell; C, the openings through the two shells for the passage of air into the interior of the inner shell; D, passage-ways for the escape of the products of combustion; E, water-tubes inside of the inner shell; F, boiler-flues; G, a cover, under which the products of combustion are discharged; H, covers to open and close the openings C; J, a rod having threads and made to pass through a threaded nut or plate; K, pieces of angle-iron upon which the covers H slide; P, the gas-burners located inside the inner shell, and S the door closing the ends of the inner shell.

The gas-burners are preferably run the whole length and inside of the inner shell and the burners so arranged as to project the burning gas or oil flame at practically right angles to the inside surface of the inner shell. The air-inlet tubes allow of the passage of sufficient air into the inside of the inner shell to support combustion, and the products of combustion are carried out through the tubes D and are discharged under the cover G, and from thence are passed along the shell of the boiler and out through the boiler-flues. The burning gas or oil flame may be projected directly against the inner surface of the inner shell or not, as may be desired.

My invention operates as follows: The gas or oil, being allowed to escape from the burners and ignited, burns the whole length of the inner shell and inside thereof, the flames being projected at practically right angles to the inner surface of the inside shell. The air to support combustion enters the inner shell through the passage-ways C, and the products of combustion are carried off through the tubes D and pass under the cover G and along the sides of the boiler to and through the boiler-tubes and out at chimney.

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

A longitudinal steam-generator consisting of an outer and an inner shell, and having passage-ways from and through the outer shell, leading into the interior of the inner shell, that air may be supplied to the interior thereof along its length, and having also passage-ways leading from the interior of the inner shell and along its length through the water and steam space to the outside of said water and steam space, that the products of combustion may escape, and having burners for the combustion of gas or oil arranged inside said inner shell and along its length, so arranged that the burning flames will stand or be projected at practically right angles to said inner shell, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

WALTER MORTON BROWN.

Witnesses:
JOHN F. FLYNN,
ARTHUR N. WHITNEY.