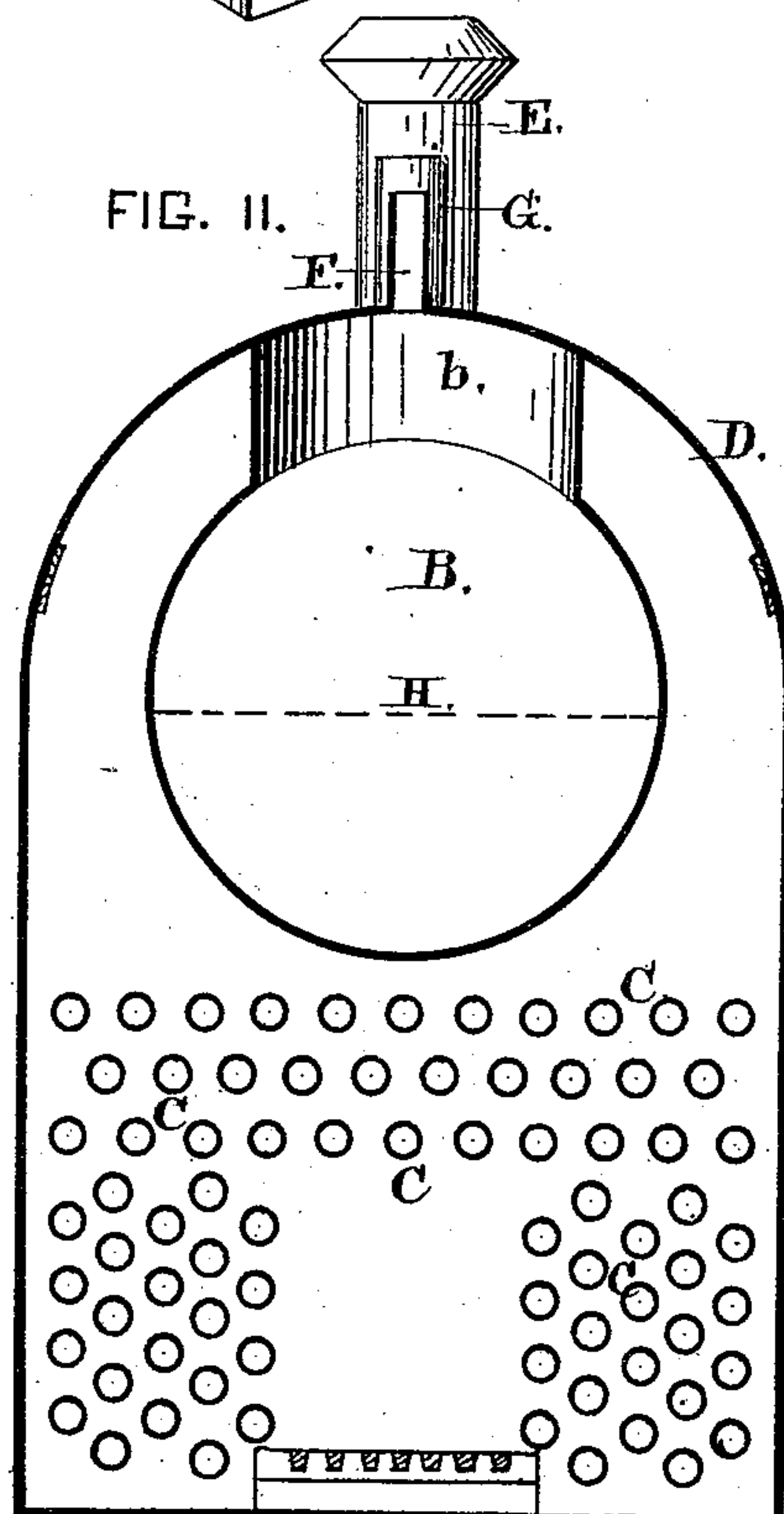
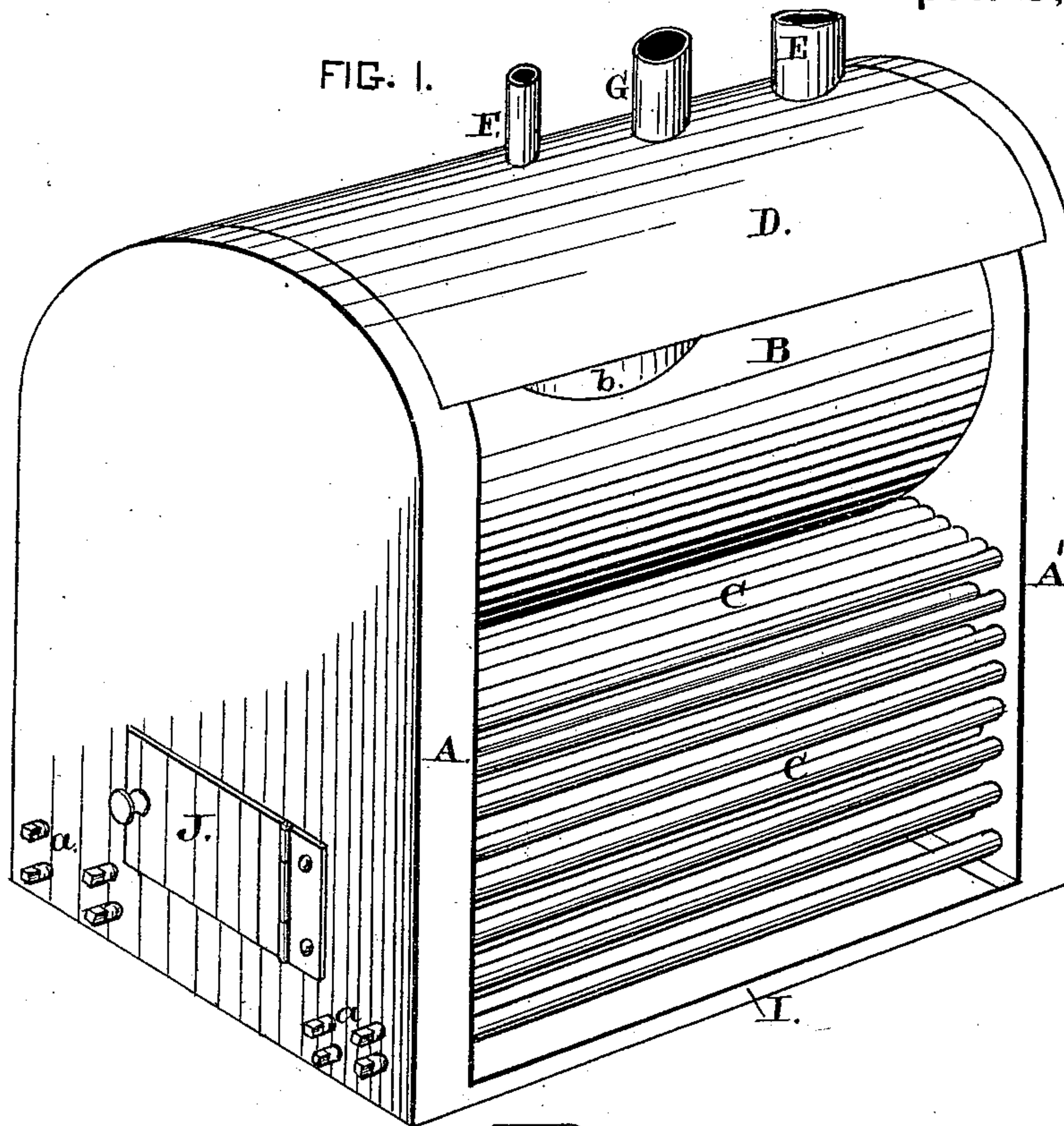


J. M. OSBORNE.
Steam-Generators.

No. 226,343.

Patented April 6, 1880.



WITNESSES:

John L. Lewis.

Charles Ketchum.

INVENTOR,

John M. Osborne

UNITED STATES PATENT OFFICE.

JOHN M. OSBORNE, OF PENN YAN, NEW YORK.

STEAM-GENERATOR.

SPECIFICATION forming part of Letters Patent No. 226,343, dated April 6, 1880.

Application filed May 12, 1879.

To all whom it may concern:

Be it known that I, JOHN M. OSBORNE, of Penn Yan, in the county of Yates and State of New York, have invented a new and useful
5 Improvement in Steam-Generators, of which the following is a specification.

The invention relates to tubular generators for making steam, having water-tubes and a steam and water reservoir, with their ends at-
10 tached to steam and water receptacles.

The object of my invention is to provide a system of generating-tubes and steam and water reservoir, both connected with receptacles alike at the ends of them, with a covering
15 for all the space between the receptacles to confine the heat about the tubes, reservoir, and inside of the receptacles.

The invention consists in the arrangement of the several parts in such manner that there
20 will be a good circulation of the water and space for a sufficient supply to keep the tubes always well supplied to prevent them being burned, and having the fire-box surrounded with the tubes and receptacles to utilize the
25 heat in the most advantageous manner.

In the accompanying drawings, Figure 1 is a perspective view with the casing removed from one side to show the tubes, water and steam reservoir, and innerside of one receptacle.
30 Fig. 2 is a vertical cross-section of the same.

The water-feed pipe and blow-off cock may be applied to the lower part of either receptacle.

A and A are receptacles for steam and wa-
35 ter—the lower part for water, the upper for steam—in that portion above the water-line of the reservoir B. They are made alike, except one has a door and passage for fuel to be put through. They are made of boiler-iron, of any
40 required size or thickness, and shaped as shown in the figure. Each one is composed of two plates with a rim of iron shaped as the contour of the plates placed between them, and all riveted together. The one having the
45 door has a corresponding rim around the fuel-passage, which is also riveted. When needed stays may be put through both plates to strengthen them. The inner plates of each have the ends of the reservoir B securely fast-
50 ened to them, with a passage through them for steam and water to pass into the reservoir.

These plates also have holes through them for the ends of the tubes C to pass through. The outside plates have holes made through them opposite the holes for the tubes for passing a
55 cleaner through the tubes to clean them when necessary. The holes have plugs *a* screwed into them when the generator is being used. The space between the receptacles is provided with an iron covering, D, made in three parts, 60
and extends from the base on one side over and down to the base on the other side. This covering should be fastened so that it may be readily removed, the whole or any or either
part. It is provided with a smoke-passage, 65
E, and holes for the pipes F and G when the steam-dome *b* does not protrude through it.

B is the steam and water reservoir. It may be made any required size. Each end has a flange formed upon it. Through the flanges
70 rivets are put to rivet the reservoir to the inner side plates of the receptacles A. Upon the upper side of this reservoir is a steam-dome extending up to the under side of the covering D, or, if preferred, through it. The
75 pipes F and G are connected to take steam from it to the engine or for other purposes.

The dotted line designated by the letter H indicates the water-line in the reservoir and the receptacles A. Steam will be generated
80 in this as well as in the other parts of the generator.

C is one of a series of tubes extending from one inside plate of the receptacles A to the other. Their ends pass through the plates and
85 are fastened in any ordinary manner. Any number of these tubes may be put in, according to the size of the generator and use it is intended for. Their size may be varied to suit the requirements of the generator, and
90 tubes of different size may be put in the same generator if preferred. These tubes should be placed in closer proximity immediately around the fire-place, so that they will constitute the sides and upper part of the fire-place. 95
These tubes are all to be filled with water, and the heat of the fire passes in all directions between them. By means of the reservoir B, with its supply of water from the water-line down, there is little danger to be apprehended of
100 the tubes being overheated by reason of any temporary defect of the water-feed pump or

injector. These tubes may be readily cleaned or relieved of scale when the generator is blown off by removing the plugs *a* and applying any of the implements in general use for that purpose.

5 I is a piece of boiler-iron, made long enough to reach from one inner side plate of the receptacles to the other, and to them each end is fastened to hold it in place, and it thereby
10 holds the receptacles in proper position while constructing the generator as well as afterward. Each of its edges is turned upward, and its width must be such that it will extend from the covering D to the side of the ash-pit.
15 Their most particular use is to prevent a draft of cold air up among the tubes, and to cause the air to pass up between the grate-bars into the fire.

J is the fuel-door. It may be made any size
20 or shape required. It opens into the fire-place, which extends from one receptacle to the other,

and may be made any required size, and its sides and upper part are made with the tubes C, and its lower side is provided with grate-bars made in any desirable manner, and they
25 must extend the whole distance between the receptacles.

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

The receptacles A and A, made of plates of iron put together, riveted, and stayed, and having in them holes for steam and water communication with the reservoir B and the tubes C, the pieces I, and plugs *a*, and, in connection
30 with them, the covering D, all constructed and arranged as herein set forth.
35

JOHN M. OSBORNE.

Witnesses:

JOHN L. LEWIS,
CHARLES KETCHUM.