

(No Model.)

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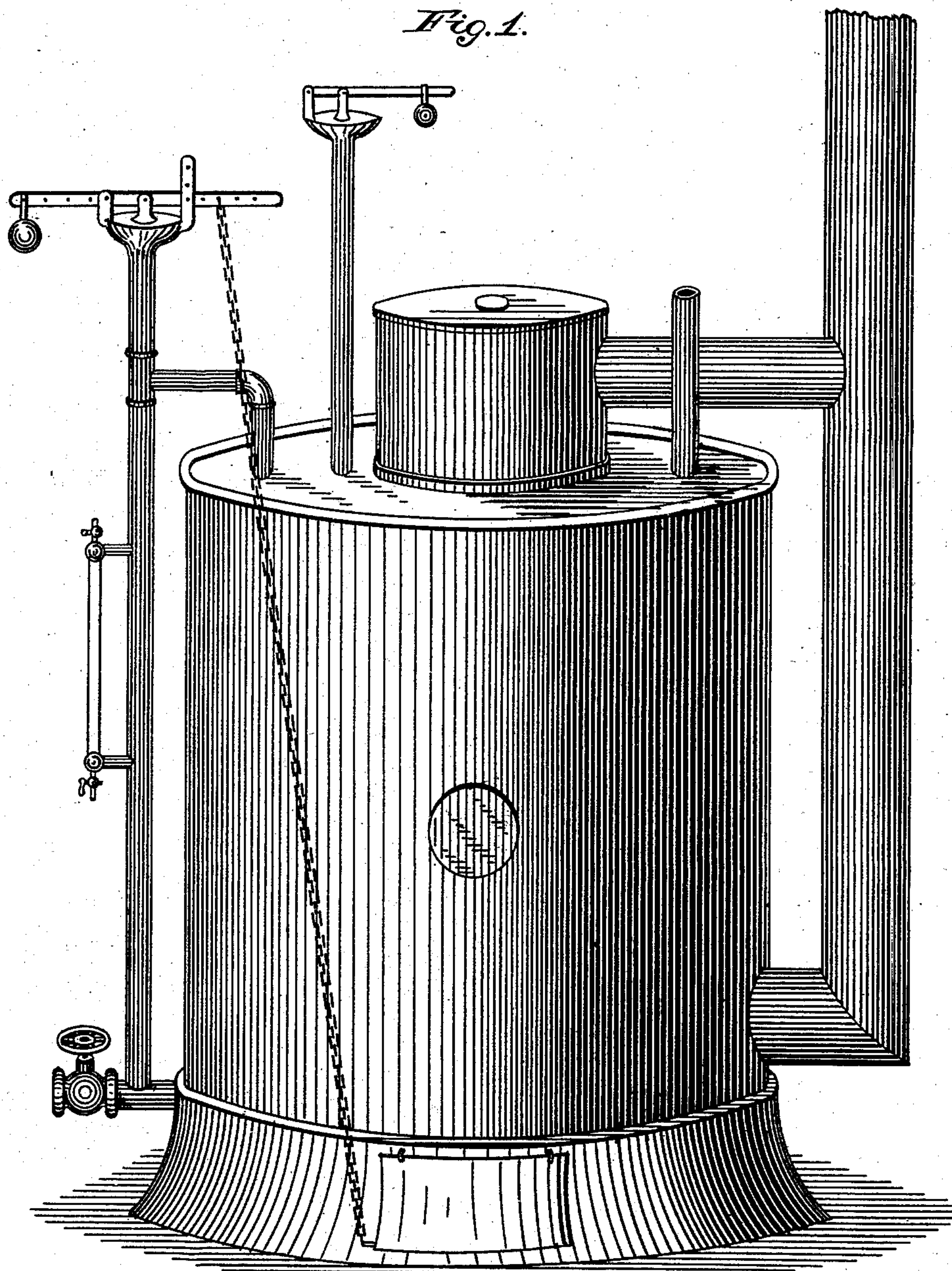
C. WHEAT & A. CATCHPOLE.

STEAM GENERATOR.

No. 267,625.

Patented Nov. 14, 1882.

Fig. 1.



Witnesses:

J. W. Garner
W. S. D. Haines

Inventors:

Alfred Catchpole,
Corydon Wheat.
By H. E. Ems *Atty.*

(No Model.)

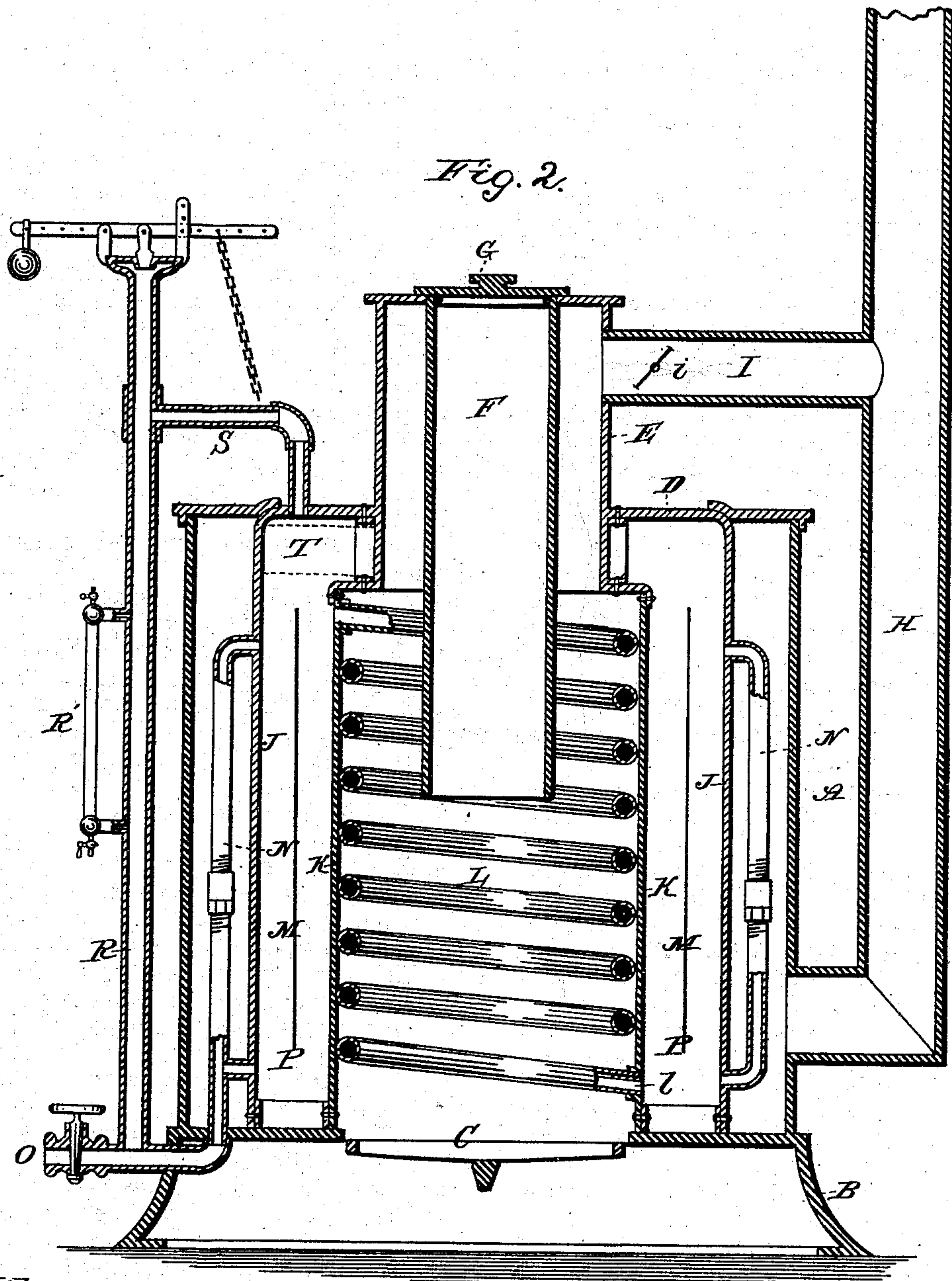
2 Sheets—Sheet 2.

C. WHEAT & A. CATCHPOLE.

STEAM GENERATOR.

No. 267,625.

Patented Nov. 14, 1882.



Witnesses:

J. W. Garner
W. S. D. Barnes.

Inventors:

Alfred Catchpole,
Corydon Wheat.

By H. J. Evans

Att'y.

UNITED STATES PATENT OFFICE

CORYDON WHEAT AND ALFRED CATCHPOLE, OF GENEVA, NEW YORK.

STEAM-GENERATOR.

SPECIFICATION forming part of Letters Patent No. 267,625, dated November 14, 1882.

Application filed May 15, 1882. (No model.)

To all whom it may concern:

Be it known that we, C. WHEAT and A. CATCHPOLE, citizens of the United States of America, residing at Geneva, in the county of Ontario and State of New York, have invented certain new and useful Improvements in Steam-Generators, of which the following is a specification, reference being had therein to the accompanying drawings.

Our invention has relation to steam-generators, or more particularly to that class of water-circulators for heating dwellings and other buildings, and the object of this invention is to provide a machine for such purposes as will be practically automatic in operation, and thus dispense with attendance of an engineer or other skilled labor; and to that end the invention consists in the construction of the same, as will be hereinafter more fully described, and particularly pointed out in the claims.

In the accompanying drawings, similar letters of reference marked thereon indicate like parts of the invention.

Figure 1 is an exterior view, in perspective, of our boiler; and Fig. 2, a vertical section thereof.

A is the outer cylindrical shell or casing, and B the base-plate, in which is suitably secured the fire-grate C.

D is the top, provided with a dome, E, in which is suspended a reservoir or fuel-feeder, F, provided with a removable cover, G, for supplying the coal or fuel.

To the outer shell, A, near the base, is connected the smoke-pipe H, extending upward parallel with the boiler, and from the dome E a pipe, I, connects the interior of said dome with the smoke-pipe H.

J is an annular shell, concentric to the outer shell, A; and K is the interior shell, inclosing a coil of pipe, L. Between the shells A and J the products of combustion pass off into the smoke-stack H, and between the inner shell, K, and the middle shell, J, is the water and steam space P. Between these shells J and K is a diaphragm, M, open at the top and bottom, and extending completely around the shell K and about midway between it and the adjoining shell J. This diaphragm may be provided with legs or suitably secured in place by stay-bolts or the like.

On the outside of the shell J is a series of vertical tubes, N, connected at the top and bottom to the interior water-space, between J and K, and the body of the pipes themselves extend into the smoke-jacket between A and J. The water enters the feed-pipe O and passes into the water and steam space P and thence into the coil L through the opening l. A vertical gage-pipe, R, is attached to the feed-pipe O, and its top terminates in a draft-regulator of ordinary construction. To the upper part of the pipe R, near its top, is a short pipe, S, connecting it with the steam-space in the top of the boiler.

R' is the water-gage, attached to the vertical pipe R.

As the water enters the space P it comes into contact with the heated shell K, which causes it to rise or circulate up around and over the top of the diaphragm M, and the shell J, being cooler than K, because it is farther removed from the fire, assists in keeping up this circulation. By this means only the hottest water finds its way into the coil L, where the steam is generated and escapes into the steam-space in the top of the boiler proper. In addition to this circulation in the water-space, caused by the differential temperature maintained or brought about by the diaphragm M, the set of pipes or tubes N further facilitate this circulation by causing a downward current of water through them, as is more particularly the case when it is required to generate very rapidly and keep up the supply, while at ordinary or low temperatures for house-heating and the like the diaphragm alone will be found amply sufficient to keep up the proper circulation.

In starting the boiler the fire is made in the coil-chamber, and the direct draft passes up into the dome E and into the smoke-stack H, and after the fire is well under way the damper i is closed. This deflects the draft and causes it to escape through the pipe T into the space between the shells A and J, and thence out through the smoke-stack H.

From the above description of our boiler it will be seen that only a small quantity of water is used at a time, and our peculiar construction enables us to use the water to the best possible advantage.

Having thus fully described our invention, what we claim as new, and desire to secure by Letters Patent of the United States, is—

1. In a steam-generator, the coil L, the shells
5 J and K, and the diaphragm M, in combination with the circulating-pipes N, as and for the purpose set forth.
2. In a steam-generator, the coil L, shells
K, J, and A, diaphragm M, and return-tubes
10 N, in combination with the reservoir F, smoke-

stack H, and direct-draft pipe I, provided with damper i, substantially as set forth.

In testimony whereof we affix our signatures in presence of two witnesses.

CORYDON WHEAT.
ALFRED CATCHPOLE.

Witnesses:

O. D. ALLEN,
C. S. BURRALL.