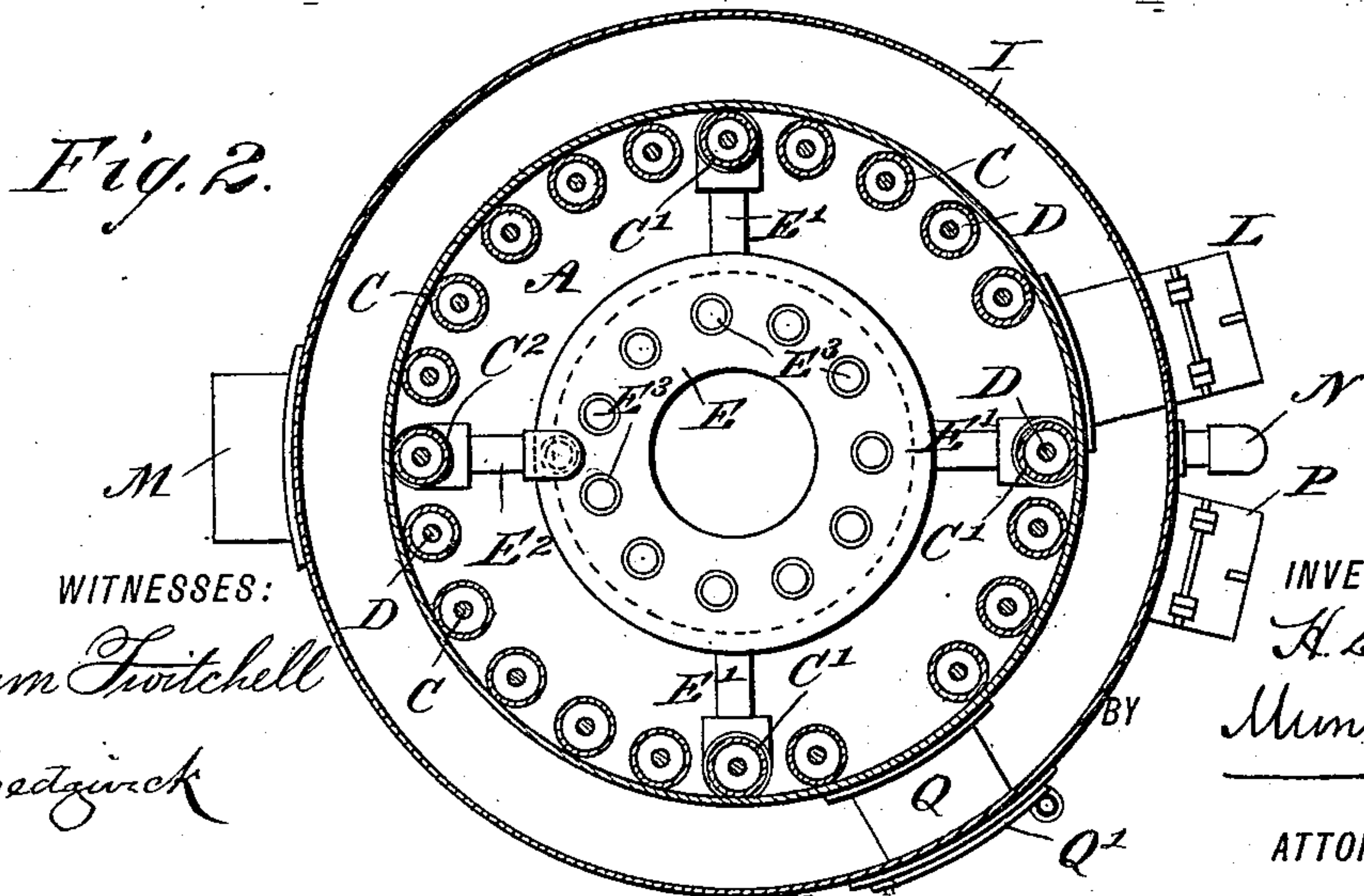
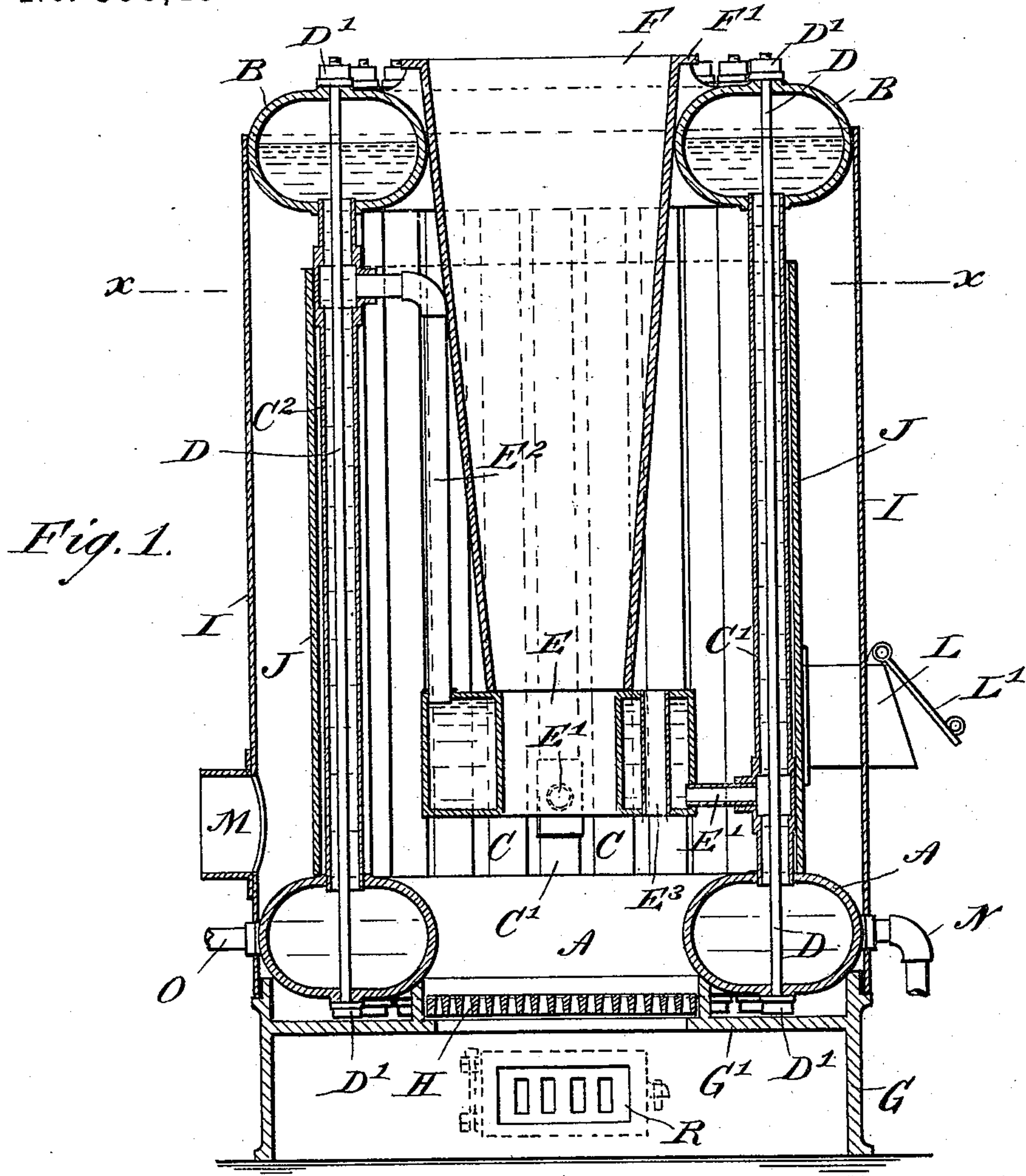


(No Model.)

H. SPERL.
STEAM HEATER.

No. 396,438.

Patented Jan. 22, 1889.



WITNESSES:

Norm Twitchell
C. Sedgwick

INVENTOR:

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ATTORNEYS.

UNITED STATES PATENT OFFICE.

HENRY SPERL, OF SUSQUEHANNA, PENNSYLVANIA.

STEAM-HEATER.

SPECIFICATION forming part of Letters Patent No. 396,438, dated January 22, 1889.

Application filed October 8, 1888. Serial No. 287,497. (No model.)

To all whom it may concern:

Be it known that I, HENRY SPERL, of Susquehanna, in the county of Susquehanna and State of Pennsylvania, have invented a new and Improved Steam-Heater, of which the following is a full, clear, and exact description.

The object of my invention is to construct a steam-heater in which water may be quickly transformed into steam, and which will generate and maintain a high degree of heat with a comparatively small quantity of fuel; and it consists in the parts which will be hereinafter described, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in both figures.

Figure 1 represents a central vertical sectional elevation of my invention, and Fig. 2 is a section on line $x x$ of Fig. 1.

A is a tubular base-ring, and B is a tubular crown-ring. These rings are connected by a circular series of vertical pipes, $C C' C^2$, and each of said vertical pipes is provided on its inner side with a rod, D, whose respective ends pass through openings in the rings A B, said ends being threaded and provided with nuts D' . A ring-shaped reservoir, E, is mounted above the base A between the circular series of pipes aforesaid, and said reservoir is provided with a central opening and a series of flues, E^3 , said flues being arranged in the form of a circle. Short horizontal pipes E' connect the vertical pipes C' with the reservoir E, and E^2 is a pipe whose lower end communicates with the said reservoir, and whose upper end communicates with the vertical pipe C^2 . A funnel-shaped magazine, F, is provided on its upper outer side with a flange, F' , the lower end of said magazine resting on the upper side of the reservoir E.

G is the circular base-casing, and G' the horizontal part of said casing, said part G' being provided with a central opening, over which is mounted a grate, H.

I is an outer jacket for the heater, the lower end of which rests upon the base G, and the upper end thereof extends upward and around the outer side of the tubular crown-ring B. An inner jacket, J, is mounted upon the base-ring A on the outer sides of the ver-

tical pipes $C C' C^2$, and said inner jacket extends upward to a point slightly below the under side of the top ring, B. The jackets I J are each provided with an opening for the reception of a damper-box, L, said box being provided with a hinged lid, L' . A damper-box, P, is secured in an opening in the jacket I, and said box communicates with the annular space between the jackets aforesaid. A flanged ring, Q, (leading to the furnace,) having a door, Q' , is fixed in the jackets I J. The base-casing G is provided with a door, R. M is a short pipe secured in an opening in the side of the jacket I, for the escape of the products of combustion. Said jacket is also provided with two additional openings—one for the admission of a water-induction pipe, N, and another for the admission of a discharge-pipe, O, each pipe N O communicating with the tubular base-ring A.

The operation is as follows: Water is admitted into the heater to the height shown by the water-line, (in crown-ring B,) Fig. 1. Fuel is admitted to the furnace through the door Q' . The furnace-fire quickly heats the water in the reservoir E, and generates steam in the several water-compartments of the heater. Air is admitted through the dampers L P R. The products of combustion pass upward outside of the magazine, around the pipes $C C' C^2$, thence outward over the top of the inner jacket, thence downward into the space between the two jackets I J, thence out of the pipe M, the draft of course being regulated by the several dampers. The rods D firmly hold the several parts of the heater in position.

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

1. In a steam-heater, the combination, with the tubular base and crown rings, of pipes connecting and communicating with said rings, a reservoir, E, mounted above the said base-ring, said reservoir being provided with a central opening and a series of flues, a series of pipes, E' , connecting the reservoir and pipes aforesaid, and a furnace, substantially as described.

2. In a steam-heater, the combination, with the tubular base and crown rings, of pipes connecting said rings and communicating

therewith, a reservoir mounted above said base-ring, said reservoir being provided with a central opening and a series of flues, a series of pipes, E' E², connecting the reservoir
5 and pipes aforesaid, and a furnace, substantially as described.

3. In a steam-heater, the combination, with the tubular base and crown rings, of pipes connecting and communicating with said
10 rings, a reservoir provided with a central opening and a series of flues, a series of pipes, E' E², connecting and communicating with the reservoir and pipes aforesaid, an outer and inner jacket, a magazine, and a furnace,
15 substantially as described.

4. In a steam-heater, the combination, with the tubular base and crown rings, of pipes connecting and communicating with said rings, a reservoir provided with a central opening and a series of flues, a series of pipes, 20 E' E², connecting and communicating with the reservoir and pipes aforesaid, an inner and outer jacket, a series of dampers, a magazine, and a furnace, substantially as described.

HENRY SPERL.

Witnesses:

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WM. EMERY.