(No Model.)

2 Sheets—Sheet 1.

H. HYDE.

MAGAZINE STEAM GENERATOR.

No. 470,195. Patented Mar. 8, 1892.

Fig. 1.

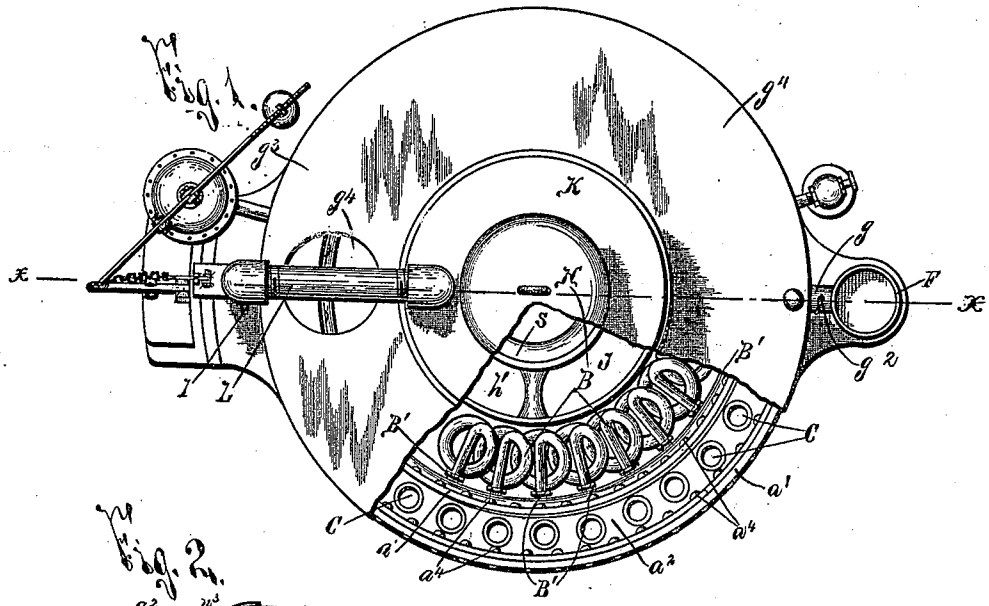
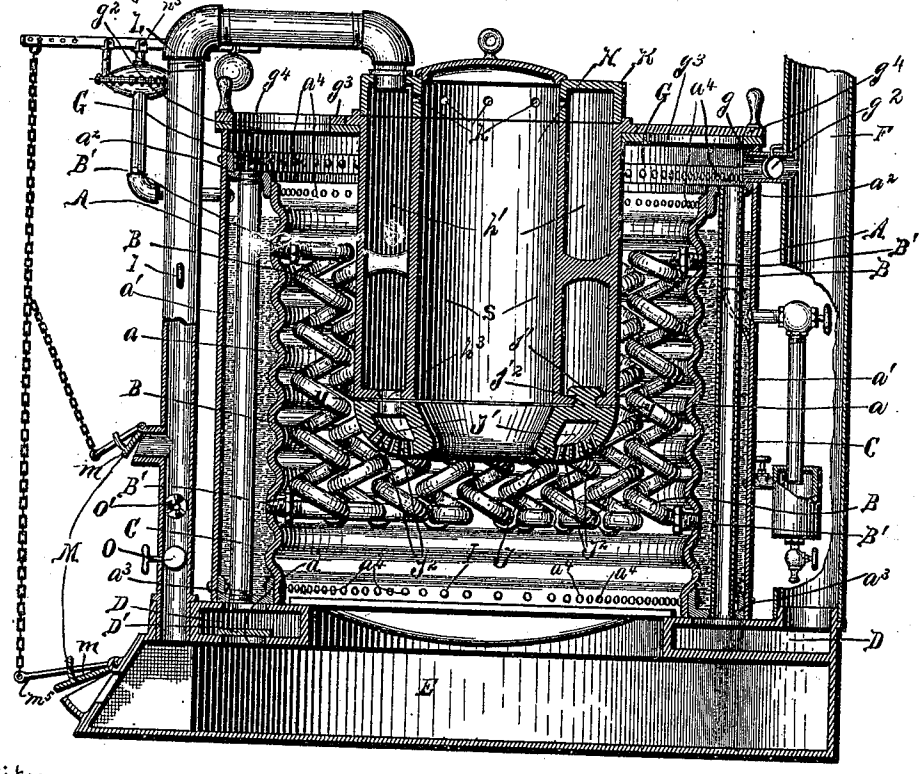


Fig. 2.



Witnesses
W. E. Chase
W. H. Randall

Inventor
Hampden Hyde
By his Attorneys
Hey Wilkinson & Parsons

(No Model.)

2 Sheets—Sheet 2.

H. HYDE.

MAGAZINE STEAM GENERATOR.

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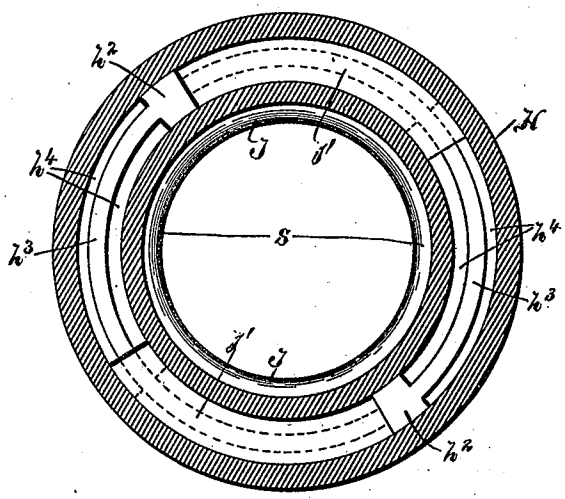
Fig. 3.



ES:
Randall
Case,

INVENTOR
Hampden Hyde
BY
Key Wilkinson & Parsons
ATTORNEYS,

UNITED STATES PATENT OFFICE.

HAMPDEN HYDE, OF ROCHESTER, NEW YORK.

MAGAZINE STEAM-GENERATOR.

SPECIFICATION forming part of Letters Patent No. 470,195, dated March 8, 1892.

Application filed October 16, 1890. Serial No. 368,266. (No model.)

To all whom it may concern:

Be it known that I, HAMPDEN HYDE, of Rochester, in the county of Monroe, in the State of New York, have invented new and useful Improvements in Magazine Steam-Generators, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

My invention relates to improvements in magazine steam-generators, and has for its object the production of a simple and effective device for increasing the efficiency of steam-generators.

To this end it consists, essentially, in a fuel-feeding magazine having an air-passage at the outside of the fuel-chamber provided with an opening for discharging air into the combustion-box, and a conduit or pipe for supplying air to said passage.

The invention furthermore consists in a detachable extremity upon said magazine, formed of fire-brick or other suitable material, and in the detail construction and arrangement of the parts, all as hereinafter more particularly described, and pointed out in the claims.

In describing this invention reference is had to the accompanying drawings, forming a part of this specification, in which like letters indicate corresponding parts in all the views.

Figure 1 represents a top plan view of my improved invention. Fig. 2 represents a vertical sectional view taken on line $x\,x$, Fig. 1, with a portion thereof broken away; and Fig. 3 represents a horizontal sectional view taken on line $y\,y$, Fig. 2.

The water-containing chamber A of my improved generator may be of any desirable form, size, and construction, being here shown as a vertical hollow drum and as provided with inwardly-projecting spirally-coiled tubes B, extending radially from the inner wall a of the water-containing chamber A. The construction of the water-containing chamber and the heating-chambers projecting therefrom form no essential part of my present invention, and it is unnecessary to further illustrate or describe the same.

The magazine of my invention consists of a fuel-containing chamber s and an outer air-chamber h' for feeding air to the combustion-box I of the generator. As preferably constructed, the fuel-containing chamber s is entirely inclosed by the outer air-chamber h', these parts being shown in the drawings as circular in cross-section.

The magazine H is preferably provided with a detachable inner end J, composed of fire-clay or other suitable non-conductor, and formed with an upwardly-projecting tongue or supporting-shoulder j, removably engaging a shoulder formed upon the magazine. As best illustrated in Figs. 2 and 3, this shoulder is preferably T-shaped and consists of two oppositely-arranged portions $j'\,j'$, adapted to enter an opening h^2 in the lower face of the magazine H. The detachable extremity J is then partially rotated until the body j^2 of the upwardly-projecting shoulder j registers with the slot h^3 of less width than the slot h^2, whereupon the under face or edges of the shoulder j' rests upon shoulders h^4 on either side of the slot h^3, and thus supports the detachable extremity.

The particular advantage accruing from the use of a detachable inner extremity upon the magazine is that the upper portion thereof may be formed of metal and said detachable extremity of fire-brick or other non-conductor, whereby a greater heat may be endured by the magazine, and said extremity when unduly worn or burned may be readily detached and replaced at a slight cost. This detachable extremity is preferably formed with an air-chamber J', connected by the openings or slots h^3 to the air-chamber h', surrounding the fuel-containing chamber s in the magazine, and is also provided with an outlet opening or openings J^2 for discharging air into the combustion-box. Air is supplied to the chamber h' by a conduit or pipe L, having its upper extremity discharging thereinto and its lower extremity opening from the ash-box E and formed with suitable air-inlets M.

l represents a damper in the inlet-pipe L for preventing the feed of the air. When starting the fire, this damper l may be closed until the draft in the chimney and smoke-exit pipe F preponderates over that normally present in the pipe L, whereupon the damper l may be opened and the combustion accelerated by the inlet of air. If desired, however, air may be artificially forced through the pipe L when starting the fire; but such is

not the preferable operation. The upper extremity of the magazine is preferably formed of a detachable plate K, having small perforations *k* in its side wall to admit a smaller degree of air into the fuel-containing chamber *s*, whence by the preponderance of draft in the pipe F it is drawn into the combustion-box.

O represents a damper mounted in the lower extremity of the inlet-pipe L for shutting off and varying the size of the current passing within the pipe L from the ash-box E.

O′ represents a second damper above the lower one O for admitting outside air to the pipe L. This damper is particularly useful when the supply through the lower inlet *m* to the ash-box E is shut off, since the outside air is then enabled to enter the pipe L and thus insure a supply to the chamber *h*′. This feature of supplying air to a chamber surrounding the fuel-containing chamber is very advantageous, since the air keeps the chamber from becoming unduly heated and burning out, and also greatly accelerates the combustion.

The operation of my invention is obvious from a consideration of the foregoing description and an examination of the drawings, and it is evident that its peculiar construction renders the same both simple, effective, and durable. It will be understood, however, that considerable change may be made in the relative construction and arrangement of the parts of my invention without departing from the spirit thereof.

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

1. The combination of an outer shell, a combustion-box, a magazine above the combustion-box for feeding the same, and a hollow extremity detachably secured to the magazine, substantially as specified.

2. The combination of an outer shell, a combustion-box, a magazine-chamber above the combustion-box for feeding the same, an air-chamber on the outside of the magazine-chamber, a detachable extremity upon the magazine-chamber, said detachable extremity being provided with an air-chamber for registering with the former air-chamber and with an opening for discharging air into the combustion-box, and a conduit for supplying air to said air-passage, substantially as and for the purpose specified.

3. The combination of an outer shell, a combustion-box, a magazine-chamber having a hollow outer wall with an opening in the lower extremity, and a hollow chamber having a tongue removably secured in said opening in the magazine-wall and having an opening for discharging air into the combustion-box, substantially as and for the purpose described.

4. The combination of an outer shell, a combustion-box, a metallic magazine having a hollow wall provided with an opening in its lower face, the non-conducting hollow extremity J, having an opening in its upper wall for registering with the opening in the magazine-wall and having a second opening for discharging air into the combustion-box, and a tongue upon said non-conducting extremity for engaging the opening in the metallic magazine and supporting said extremity, substantially as set forth.

5. The combination of an outer shell having a combustion-box, an ash-box below the combustion-box, an air-feeding chamber on the interior of the shell above the combustion-box having an opening for discharging air thereinto, a conduit between the ash-box and the air-feeding chamber for conveying air one to the other, a damper for shutting off the flow from the ash-box, and a second damper for admitting the outside air to said conduit, substantially as described.

6. The combination of an outer shell, an ash-box, a fuel-feeding chamber, an air-chamber on the outside of the fuel-feeding chamber, and a conduit between said ash-box and air-feeding chamber, substantially as specified.

7. The combination of an outer shell, an ash-box, a fuel-feeding chamber, an air-chamber on the outside of the fuel-feeding chamber, a secondary feeding-chamber connected with and removably secured to the former air-feeding chamber and formed with openings for discharging the air into the combustion-box, and a conduit between said ash-box and former air-feeding chamber, substantially as and for the purpose described.

In testimony whereof I have hereunto signed my name, in the presence of two attesting witnesses, at Rochester, in the county of Monroe, in the State of New York, this 8th day of October, 1890.

HAMPDEN HYDE.

Witnesses:
M. BAXTER,
E. A. WEISBURG.