

(No Model.)

J. R. VANCE & S. D. PARKER.

STEAM GENERATOR.

No. 282,808.

Patented Aug. 7, 1883.

Fig. 1.

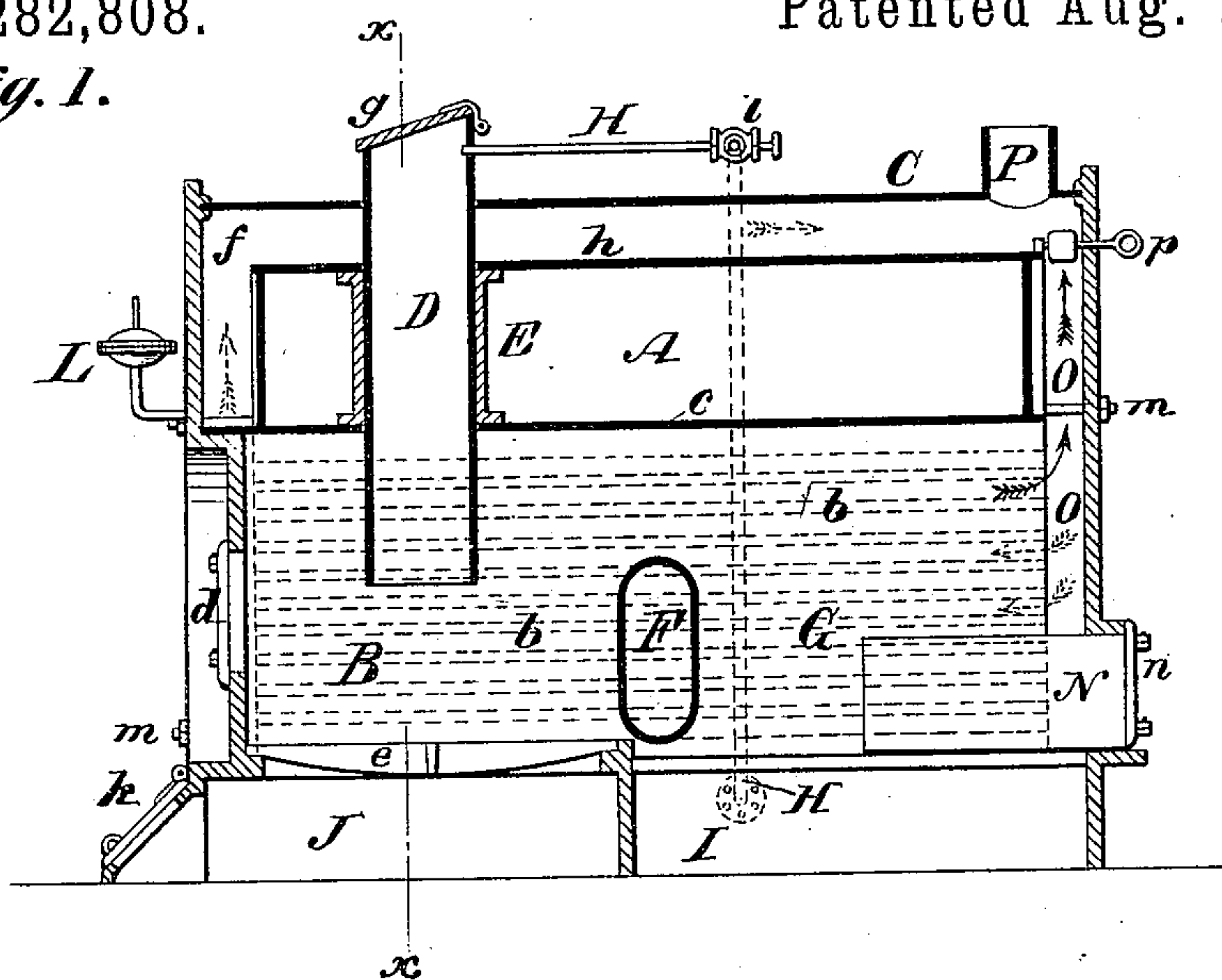


Fig. 2.

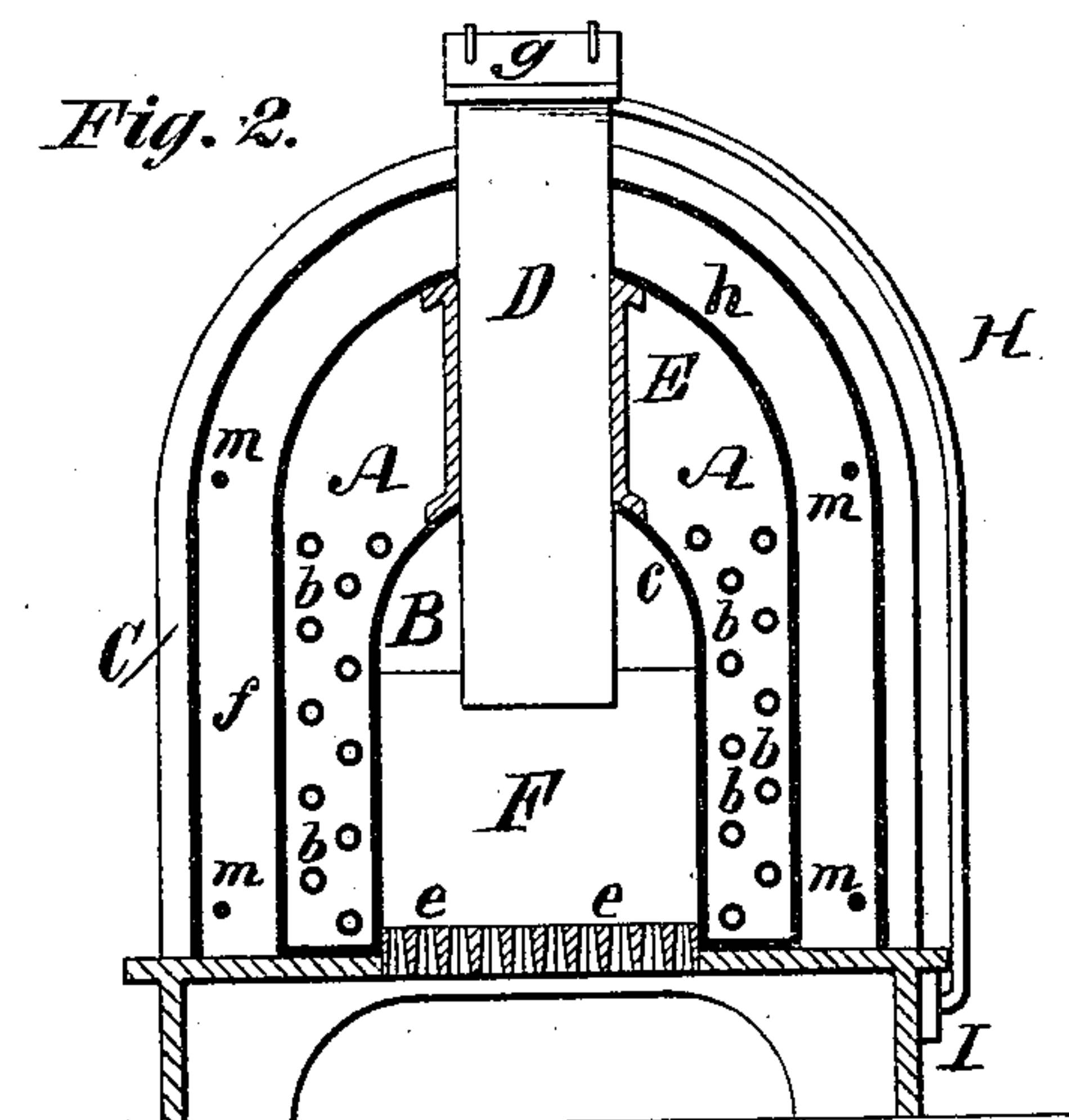
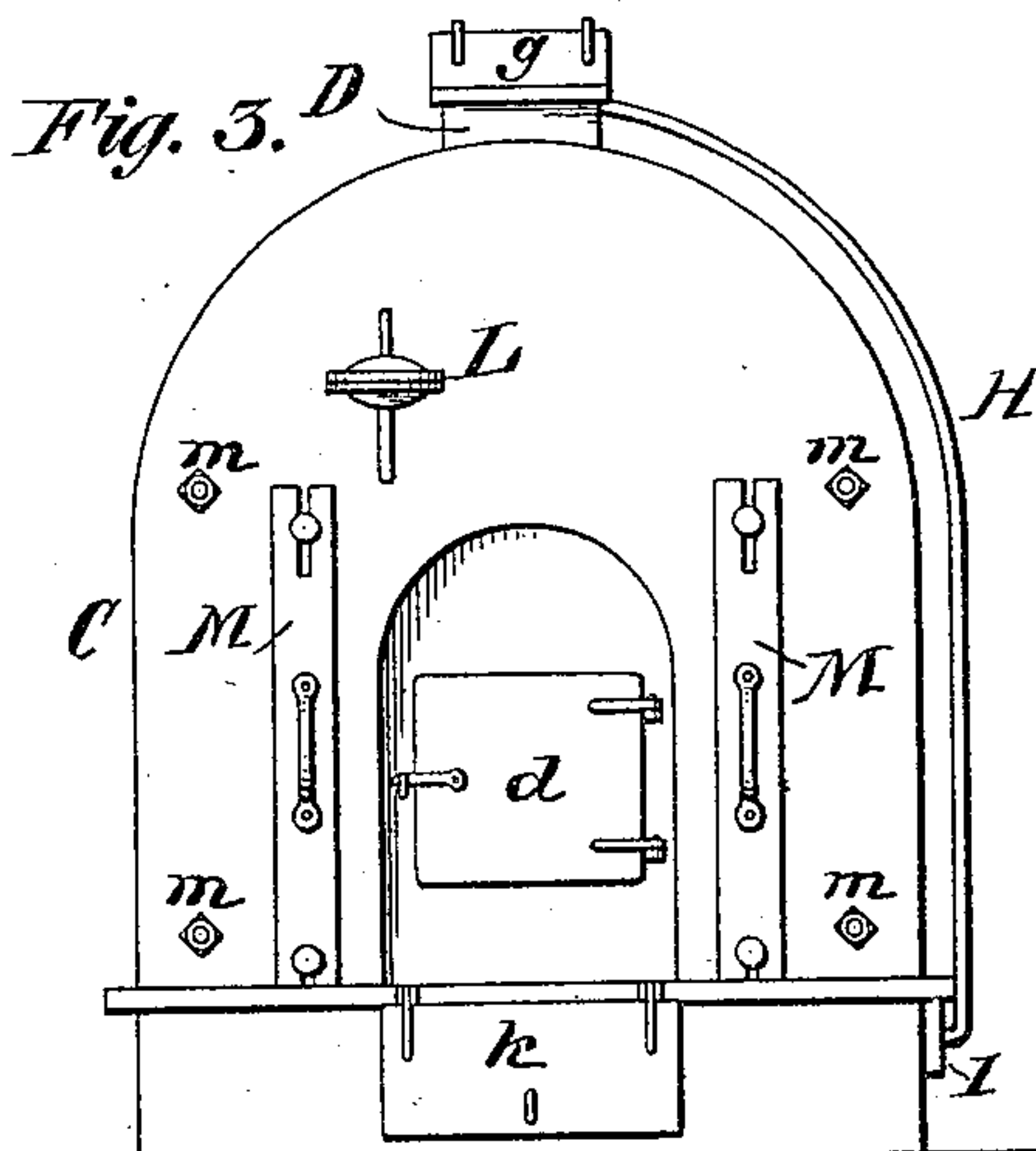


Fig. 3.



WITNESSES :

John H. Deemer
C. Sedgwick

INVENTOR:

INVENTOR:
J. R. Vance
J. D. Parker
BY *Mum & Co*
ATTORNEYS.

ATTORNEYS.

UNITED STATES PATENT OFFICE.

JAMES R. VANCE AND STEPHEN D. PARKER, OF GENEVA, NEW YORK.]

STEAM-GENERATOR.

SPECIFICATION forming part of Letters Patent No. 282,808, dated August 7, 1883.

Application filed March 8, 1883. (No model.)

To all whom it may concern:

Be it known that we, JAMES R. VANCE and STEPHEN D. PARKER, both of Geneva, in the county of Ontario and State of New York, have invented a new and useful Improvement in Steam-Generators, of which the following is a full, clear, and exact description.

Our invention relates to improvements in steam-generators; and it consists in the peculiar construction and arrangement of parts, as hereinafter fully described, and pointed out in the claims.

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

Figure 1 represents a vertical longitudinal section of a steam-generator embodying our invention; Fig. 2, a vertical transverse section of the same on the line *x x* in Fig. 1, and Fig. 3 a front end view thereof.

A in the drawings indicates the water and steam chamber of the generator, of arched form on top, with opposite side legs or walls, and having longitudinal fire tubes or flues *b*, extending from end to end of said chamber throughout said legs from their bottom upward, thus exposing the water where its coldest particles settle to an extended heating-surface.

B is the fire-box, arranged at the front end of the generator, below the crown-sheet *c*, and between the legs of the chamber A; *d*, its firing-door, and *e e* its grate-bars.

C is a jacket arranged to inclose the chamber or boiler A, and leaving a space, *f*, between them, both at the top, sides, and ends.

D is a coal or fuel magazine, provided with a cover, *g*, on top, and arranged to extend down through the jacket-space of the generator through the steam-chamber A and into the fire box or chamber B, said magazine passing through a thimble, E, attached to the crown-sheet *c* and shell *h*, whereby the magazine is protected from exposure to the steam, and a close joint is established for it in its passage through the steam-chamber.

F is a hollow bridge-wall and water-back in rear of the fire-chamber B, and connecting at its ends with the side legs of the chamber A,

whereby increased strength is obtained for the whole structure, and a good circulation for the water in the generator.

G is the combustion-chamber for the escaping gaseous products of combustion, arranged to extend the whole remaining distance of the chamber A in rear of the bridge-wall F.

H is a pipe connecting the upper portion of the fuel-magazine D with the combustion-chamber through a perforated sleeve, I, that serves to admit air to mingle with the gases that are generated in the magazine, and are passed by the pipe H into the combustion-chamber, where said gases, aided by the incoming air, are consumed. This pipe H is or may be provided with a valve, *l*, for closing it when required.

J is the ash-pit, *k* its door, and L a diaphragm-regulator, which may be connected with said door, for regulating the draft through the ash-pit.

M M are removable plates, arranged so that when removed ready access is had to the tubes *b* at their forward ends for the purpose of cleaning them. Rods *m m* may be arranged to extend the full length of the generator to brace or tie the ends thereof against the ends of its body. The combustion-chamber G is fitted with a rear door, *n*, and with a sliding or removable oven, N, that may be used for cooking purposes.

The shell *h* and crown-sheet *c* of the steam-chamber A are constructed or arranged to project at their ends, so as to form a rear direct flue, O, to the chamber-flue P, when a damper, *p*, in it is open for the purpose, and, when said damper is closed, a return-flue through the tubes *b* to the front of the generator and through the space *f* over the top of the chamber A to said chimney-flue. These different directions for the draft are represented by arrows in Fig. 1, the arrows in full lines indicating the course of the draft when it is up the direct flue, and the dotted arrows its course when it is through the return flue or flues.

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

1. In a steam-generator, the combination, with the arched steam-generating chamber A,

provided with opposite side legs, and having its top and bottom walls extended rearwardly to form the direct flue O, of the jacket C, inclosing the said chamber and leaving the space *f* at the top, sides, and ends, the damper *p* in the direct flue O, the chimney-flue P, and the fire-tubes *b*, arranged in the legs of the steam-chamber, substantially as herein shown and described.

10 2. In a steam-generator, the combination, with the steam-generating chamber A, having opposite side legs, of the fire-box B, the combustion-chamber G, and the hollow bridge-wall F, arranged between the fire-box and combustion-chamber and communicating with the legs of the steam-chamber, substantially as herein shown and described.

15 3. In a steam-generator, the combination, with the fire-box B and the combustion-cham-

ber G, in the rear of the fire-box, and provided with the door *n*, of the removable over N, arranged in the rear portion of said chamber, substantially as herein shown and described. 20

4. In combination with the steam-generating chamber A, fire box or chamber B, fuel-magazine D, arranged to project through the steam-generating chamber into the fire-box, and combustion-chamber G, the pipe H and perforated sleeve I, for conveying gas from the magazine to the combustion-chamber, and supplying air for its combustion therein, substantially as specified. 25 30

JAMES R. VANCE.
STEPHEN D. PARKER.

Witnesses:

CHARLES BUNGE,
BYRON W. SCOTT.