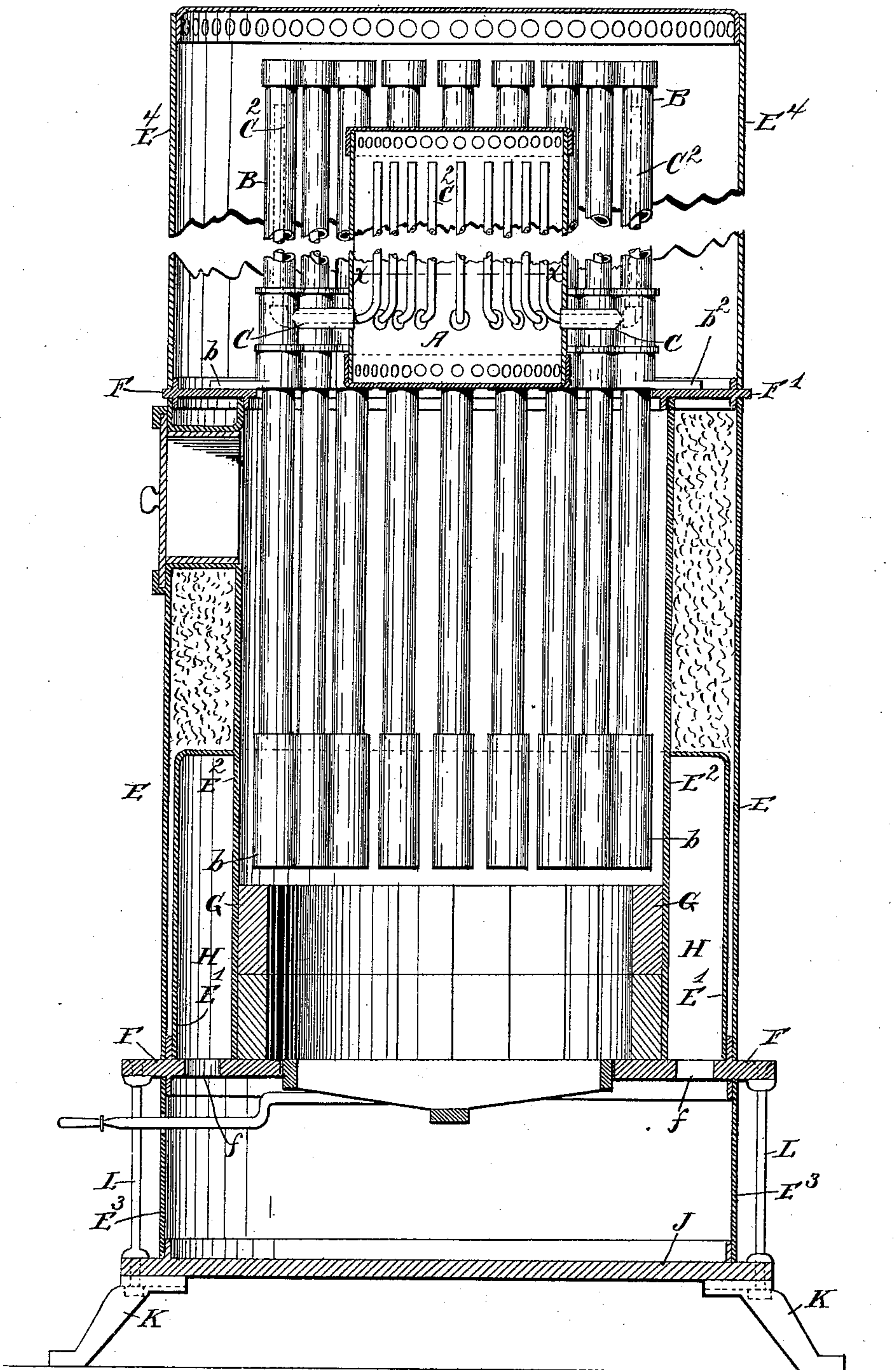


(No Model.)

A. F. MEAD.
STEAM GENERATOR.

No. 566,994.

Patented Sept. 1, 1896.



Witnesses
V. T. Shilson.
Wm. M. Fowler

A. F. Mead Inventor

By his Attorney J. C. Fowler Jr.

UNITED STATES PATENT OFFICE.

ARTHUR F. MEAD, OF NEW YORK, N. Y.

STEAM-GENERATOR.

SPECIFICATION forming part of Letters Patent No. 566,994, dated September 1, 1896.

Application filed May 8, 1894. Serial No. 510,552. (No model.)

To all whom it may concern:

Be it known that I, ARTHUR F. MEAD, a citizen of the United States, and a resident of New York, county and State of New York, have invented certain new and useful Improvements in Steam-Generators, of which the following is a specification.

My invention relates to steam-generators, and has for its object the facilitation of the production of steam; and it consists in the construction, arrangement, and operation of parts first fully described, and then pointed out in the claims.

Referring to the drawing accompanying and forming a part of this specification, and which is a central vertical section of a generator constructed according to my invention, A represents the body of my generator, which is surrounded by a series of compound water-legs B, each provided with a nipple C, and also being provided at its lower extremity with an elongated cast-iron foot or cap b. Within the upper portion of the water-leg B and passing through the nipple C is a U-shaped pipe C², the outer arm of which extends up into the generator-body A.

The vertical water-legs B are provided with water-inlets and extend nearly entirely around the body A of my generator and are surrounded by the double-shell casing E E², located between the grate-ring F and flanged ring F, and almost entirely filled with a suitable heat-non-conducting material, as asbestos, mineral wool, &c.

Fire-brick G are preferably used to form a lining for my fire-box, and adjacent to the same is located an air-chamber H, formed by a sheet-iron wall E', which extends upward from the grate-ring F, rising close to the outer shell for a distance somewhat greater than the height of the fire-brick G, and then turning inward joins the inner shell E². Perforations f in the grate-ring F afford a circulation of air through the chamber H.

The flanged bottom J of the ash-pit is supported by legs K and is secured to the grate-ring F by the rods L. The ash-pit and the upper portion of my generator are inclosed by sheet-iron casings, respectively designated as E³ and E⁴.

In operation the air-chamber H serves to keep the walls of my double casing compara-

tively cool and to prevent the inner wall E² of the same from being burned out. The lower portions of my compound water-legs B act as water-reservoirs, while the upper parts of the same, above the nipple C, serve as chambers in which the boiling water and steam may be partially separated, as the greater portion of the water will fall back by gravity, while the steam and a small part of the water will pass downward through the inner pipe C² through the nipple C, although not communicating therewith, and also through the remaining portion of the U-shaped pipe C², and will enter the interior of the generator-body above the water-level, thus obviating any raising or foaming of the water, from which generator-body the steam may be conducted in order to be used at will.

By the construction shown the small pipes C² will be practically always open and afford a free passage for the steam to enter the body of my generator above the water-level, while at the same time the nipples C serve as feed-pipes from the water-reservoirs formed by my compound water-legs B to the generator-body A, the water being supplied below the water-level.

My double casing is first rigidly put together or built up, the same extending almost to the top of the steam-generator, and the detachable steam-generating device, as the water legs and boiler provided with lateral extensions, are then hung in the interior of the same, being entirely supported by the double casing. By this arrangement of parts I am able to remove and renew the fire-bricks without disturbing the generator-body.

As it is evident that many slight changes in the relative construction and arrangement of parts might be resorted to without departing from the spirit and scope of my invention, I would have it understood that I do not restrict myself to the particular construction and arrangement of parts shown and described, but that I reserve the right to make such changes, and that

What I claim as new, and desire to secure by Letters Patent, is—

1. In a steam-generator, a rigid double casing formed of two walls and intermediate packing, in combination with an independent steam-generating device and also with

lateral supporting means whereby the generator may be detachably supported within the said double shell.

2. In a steam-generator a double casing
5 formed of two walls and intermediate packing, and provided with a cast-iron top and base, and also provided with an air-chamber adjacent to the inner wall, the base being perforated in order to afford a circulation of air
10 in said chamber.

3. In a steam-generator, the combination, with a rigid double casing formed of two walls and intermediate packing, of an independent generator-body provided with water-legs, and
15 of lateral supporting means whereby the said generator-body and water-legs may be detachably suspended within the said double shell.

4. The combination, with a rigid double
20 casing formed of two walls and intermediate packing, of a series of water-legs provided with extensions whereby the same may be detachably supported by said casing.

5. The combination with a boiler of a water-
25 leg, and of a feed or inlet connected with said water-leg and located below the water-level

of the boiler—the upper part of the said water-leg being provided with an inside pipe whereby the steam is conducted into the boiler above the water-level thereof. 30

6. The combination with a boiler of a leg provided with a nipple and of a feed or inlet connected with the said water-leg and located below the water-level of the boiler, and also of a U-shaped pipe passing through the nipple and extending up into the boiler and water-leg. 35

7. The combination with an independent steam-generating device and with lugs or lateral extensions projecting from the exterior
40 of the generator-body, of a supporting, inclosing, rigid casing whereby the generator may be detachably suspended.

In testimony of the foregoing specification I do hereby sign the same, in the city of New
45 York, county and State of New York, this 16th day of May, A. D. 1892.

ARTHUR F. MEAD.

Witnesses:

J. ODELL FOWLER, Jr.,
WM. M. V. FOWLER.