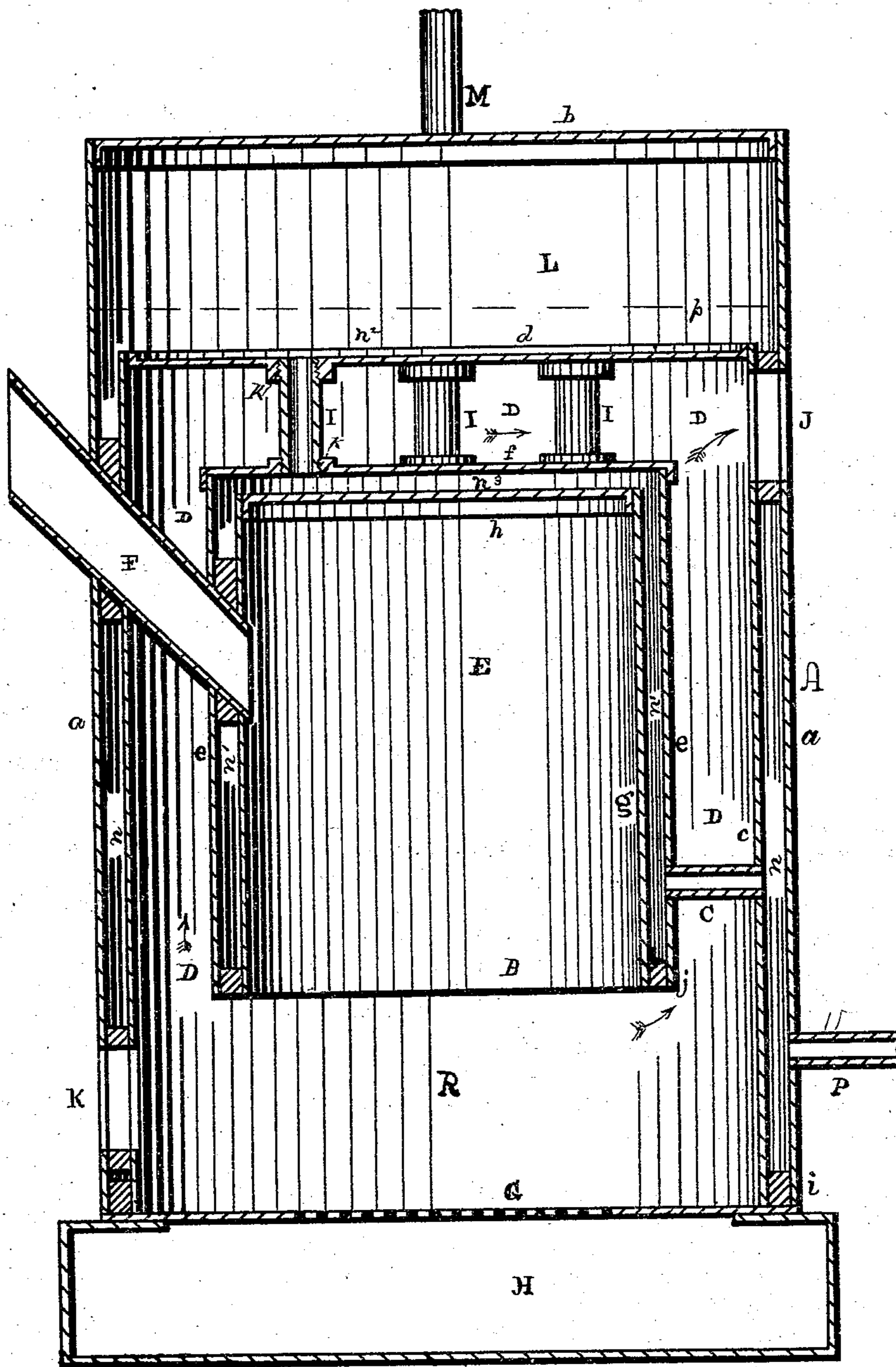


W. E. HAXTUN.
Steam-Generators.

No. 153,486.

Patented July 28, 1874.



Witnesses.
C. A. West.
O. W. Bond.

William E. Haxtun
Inventor.

UNITED STATES PATENT OFFICE.

WILLIAM E. HAXTUN, OF KEWANEE, ILLINOIS.

IMPROVEMENT IN STEAM-GENERATORS.

Specification forming part of Letters Patent No. **153,486**, dated July 28, 1874; application filed March 26, 1874.

To all whom it may concern:

Be it known that I, WILLIAM E. HAXTUN, of Kewanee, Henry county, Illinois, have invented new and useful Improvements in Steam-Generators, of which the following is a full description, reference being had to the accompanying drawings, in which is represented a vertical section of the generator without its case.

My improvements are chiefly designed to be used in steam-heaters, and relate to that class of steam-generators in which there are two vertical cylindrical boilers, one within the other. The objects of my invention are to provide a simple and durable self-feeding base-burning generator and increase its heating capacity; and it consists in connecting the two boilers by means of tubes without the use of steam-packing, and supporting the inner boiler within the outer by means of such connecting-tubes; in so constructing and connecting the two boilers that the tops of both of them can be covered with water, and in the several combinations herein claimed.

In the drawings, A represents the outer, and B the inner, boiler. Each is cylindrical, and each consists of two shells or parts, secured together at the bottom. *a* represents the wall, and *b* the top, of the outer portion of the boiler A, and *c* represents the inner wall, and *d* the top of the inner shell, of the same boiler. *e* represents the outer wall, and *f* the top, of the inner boiler B, while *g* represents the inner wall, and *h* the top, of the inner portion of B. *a* and *c* are riveted together at the bottom *i*, and *e* and *g* are secured together in the same manner at *j*, forming water-spaces *n n¹ n² n³*. I are tubes, provided at their ends with right-and-left-handed screws *k*, by means of which they are inserted in the heads *d f*, forming passages for the flow of water from one boiler to the other, and for the escape of steam from B. C is a pipe located at or near the base of B, which connects the vertical portions of the two boilers, forming a water communication between them, facilitating the circulation, and allowing the water to be drawn from the entire generator through a discharge-pipe located at the base of the outer boiler. D is a passage for heat and smoke, entirely surrounding the inner boiler; J, smoke-outlet. E is a chamber within the walls of the inner boiler, and forms a magazine or reservoir for coal, which

is introduced therein through the chute F. G is the grate, and H ash-pit; K, door, through which access is had to the fire-chamber R for kindling the fire, removing clinkers, &c.; L, steam-chamber, and M steam-pipe, to which the coils are connected. Several of these pipes M may be used. The boilers are to be placed on a suitable base or foundation, and surrounded by a suitable metal case or brick-work, as usual.

In use, the boilers should always be filled with water to about the height indicated by the dotted line *p*, keeping the head *d* always covered, and leaving above the water-line a suitable steam-chamber, L. The fire having been kindled, the magazine E will be filled with coal, thus furnishing a base-burning self-feeding steam-generator, in which the coal-magazine is surrounded at the sides and over the top by a water-jacket, and entirely preventing the ignition of the reserve coal in the magazine, either by a draft through it or by contact with hot iron.

The chute F is to be tightly closed by a suitable door. The water may be supplied at P. Water and steam indicators, safety-valve, damper-regulators, and other appliances in use can be connected with the generator.

In manufacturing the generator, it will be advisable to first connect the two heads *d f* by means of the pipes I, and then connect *e, g h, c*, and *a b* in the order named, inserting the pipe C before attaching *a*, the remaining portions being completed as may be convenient.

I do not confine myself to the use of screw-threaded pipes for the purpose of connecting the two heads *d f*. These two heads and the pipes I might be all cast together; or the pipes could be secured in any suitable manner.

It will be well to make the water-space between *h* and *f* wider than represented in the drawing.

What I claim as new is as follows:

The boiler A, in combination with the boiler B, fuel-magazine E, and chute F, supported within the boiler A by means of the pipes I, which connect the steam-chamber L with the boiler B, substantially as and for the purpose specified.

WILLIAM E. HAXTUN.

Witnesses:

E. A. WEST,
O. W. BOND.