

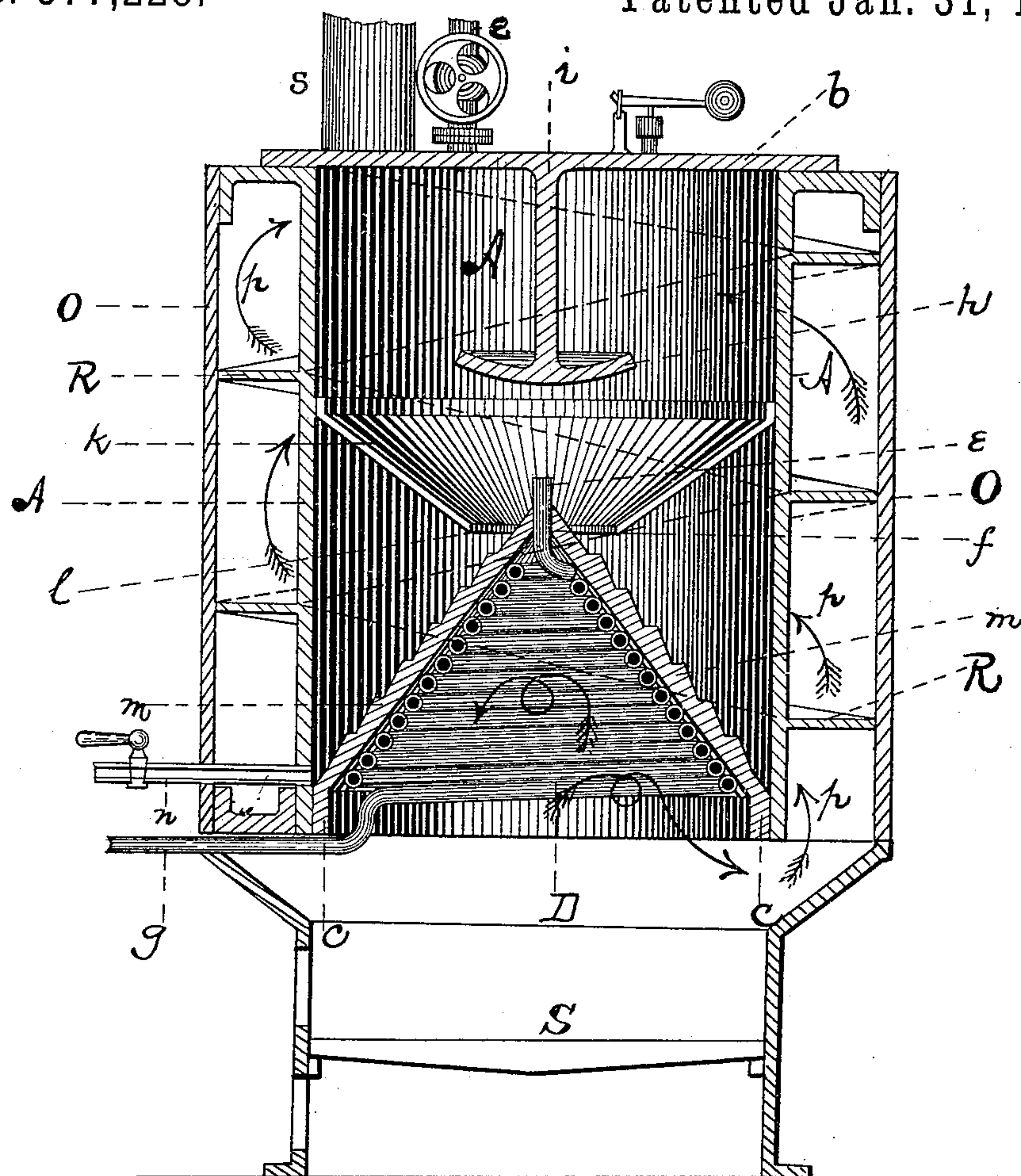
(No Model.)

F. M. BARTLETT.

STEAM GENERATOR.

No. 377,228.

Patented Jan. 31, 1888.



Witnesses:

Frank S. Waterhouse  
Wm. V. Moley

Inventor.

Fredrick M. Bartlett.  
By his atty  
Herbert S. Riggs.



# UNITED STATES PATENT OFFICE.

FREDRICK M. BARTLETT, OF WOODSTOCK, MAINE.

## STEAM-GENERATOR.

SPECIFICATION forming part of Letters Patent No. 377,228, dated January 31, 1888.

Application filed April 6, 1887. Serial No. 233,893. (No model.)

*To all whom it may concern:*

Be it known that I, FREDRICK M. BARTLETT, residing at Woodstock, in the county of Oxford and State of Maine, have invented certain new and useful Improvements in Steam-Generators; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to the construction of an improved form of apparatus for speedily generating steam from water.

The object of my invention is to produce a compact and simple device for generating steam; and my invention consists of a construction hereinafter fully described, and subsequently pointed out in the appended claims.

The drawing represents a central vertical section.

A in the drawing represents the steam-reservoir of my newly-devised apparatus, which is cylindrical in form and has a flat top, *b*, and an inverted-cone-shaped bottom, *c*. The walls of this reservoir are intended to be constructed of any suitable material—*i. e.*, sheets of wrought-iron, steel, copper, &c.—the sheets being fastened together by any one of the methods ordinarily employed in the shops of boiler-makers. Directly under the reservoir is seen a coil of water-pipe, *D*, wound to cone form to correspond with the shape of the bottom *c*. At the apex of the cone-coil the pipe end, as is indicated by the letter *e*, is bent upwardly and carried through the orifice *f* a few inches into the interior of the reservoir. The cone-coil *D* is placed directly over any convenient furnace or fire-pot, so that close proximity to the flames and heated gases of the fire beneath may readily raise to a highly-heated temperature any contained water.

Water is introduced into the coil *D* by way of the pipe *g* under sufficient pressure to force it through the coil into the reservoir. The water when it enters the coil *D* is cold. Its temperature, however, is immediately changed as soon as it comes in contact with the heated coil, and by the time it is forced out of the apex pipe, *e*, it has become highly heated. This highly-heated water is injected into the reservoir *A*, up against the convex face of a disk, *h*,

which caps the end of a vertical shaft, *i*, suspended from the bottom side of the flat top *b*, with sufficient force to break the stream of water into globules or spray. From contact with the disk *h* the highly-heated spray falls upon the inclined face of the funnel-shaped diaphragm *k*, down which it runs, and passes through an opening, *l*, upon the inclined face of the cone-shaped bottom *c*. The bottom *c* is preferably made of copper, although other metal can be used in its construction without in the least changing the principles contemplated in the invention. On the inner side of the reservoir *A* the bottom *c* is provided with a series of annular corrugations, *m*.

The action of the flames of the furnace, in addition to highly heating the cone-coil *D*, also intensely heats the bottom *c*, so that the spray of highly-heated water falling from the diaphragm *k* is instantly converted into steam when it comes in contact with the cone-shaped bottom *c*. In case any globules of the water-spray are not converted at first contact, I have arranged the series of annular wrinkles or corrugations *m*, so that the globules, in passing from one corrugation to another, will be broken up, and by the time the last one has been reached the globules will be surely broken and converted into steam. At the bottom of the reservoir *A* is seen a discharge-pipe, *n*, for drawing off the contents.

To carry off the products of combustion from the fire-pot or furnace *S* beneath the reservoir, which furnace or fire-chamber may be made in any ordinary or usual manner, I make the following provisions: A cylindrical inclosing-shell, *O*, is built around the reservoir and sufficiently removed from the same to leave a flue, *p*. A metallic ribbon, *R*, is wound spirally around the reservoir within the air-space *p*, the edges of this ribbon being directly fastened to both the outer walls of the reservoir *A* and the inner wall of the inclosing-shell *O*. The smoke and gases rising from the flames enter a flue at the bottom, and, following the direction of the spiral ribbon *R*, go round and round the reservoir, and finally pass out through the smoke-pipe *s*. By this means I am enabled to keep the reservoir highly heated, so that there shall be little or no danger of condensation or lowering of the



temperature of the highly-heated water passing from the pipe *c* by reason of meeting a lower temperature.

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

1. The steam-generating reservoir having an inverted-cone-shaped bottom provided with a series of wrinkles or corrugations, and having its apex pierced for the passage through of a pipe for conveying highly-heated water, substantially as shown and set forth.

2. The steam-generating reservoir having an inverted-cone-shaped bottom provided with a series of wrinkles or corrugations, and having its apex pierced for the passage through of a pipe for conveying highly-heated water, in combination with a cone-coil of pipe beneath and corresponding with said reservoir's bottom, a conducting-pipe at the apex of the cone-

coil, a spraying-disk within said reservoir, an internally-located funnel-shaped diaphragm for discharging the sprayed highly-heated water upon the corrugated surface of the said cone-shaped bottom, substantially as set out.

3. The combination, in an apparatus for speedily generating steam from water, of the cone-coil of pipe, the cone-shaped bottom, wrinkled and corrugated, as set forth, the spraying-disk, and spray-collecting diaphragm, substantially as and for the purpose herein set out.

In testimony that I claim the foregoing as my own I have affixed my signature in the presence of two witnesses.

FREDRICK M. BARTLETT.

Witnesses:

MICHAEL BURKE,  
H. G. BRIGGS.