

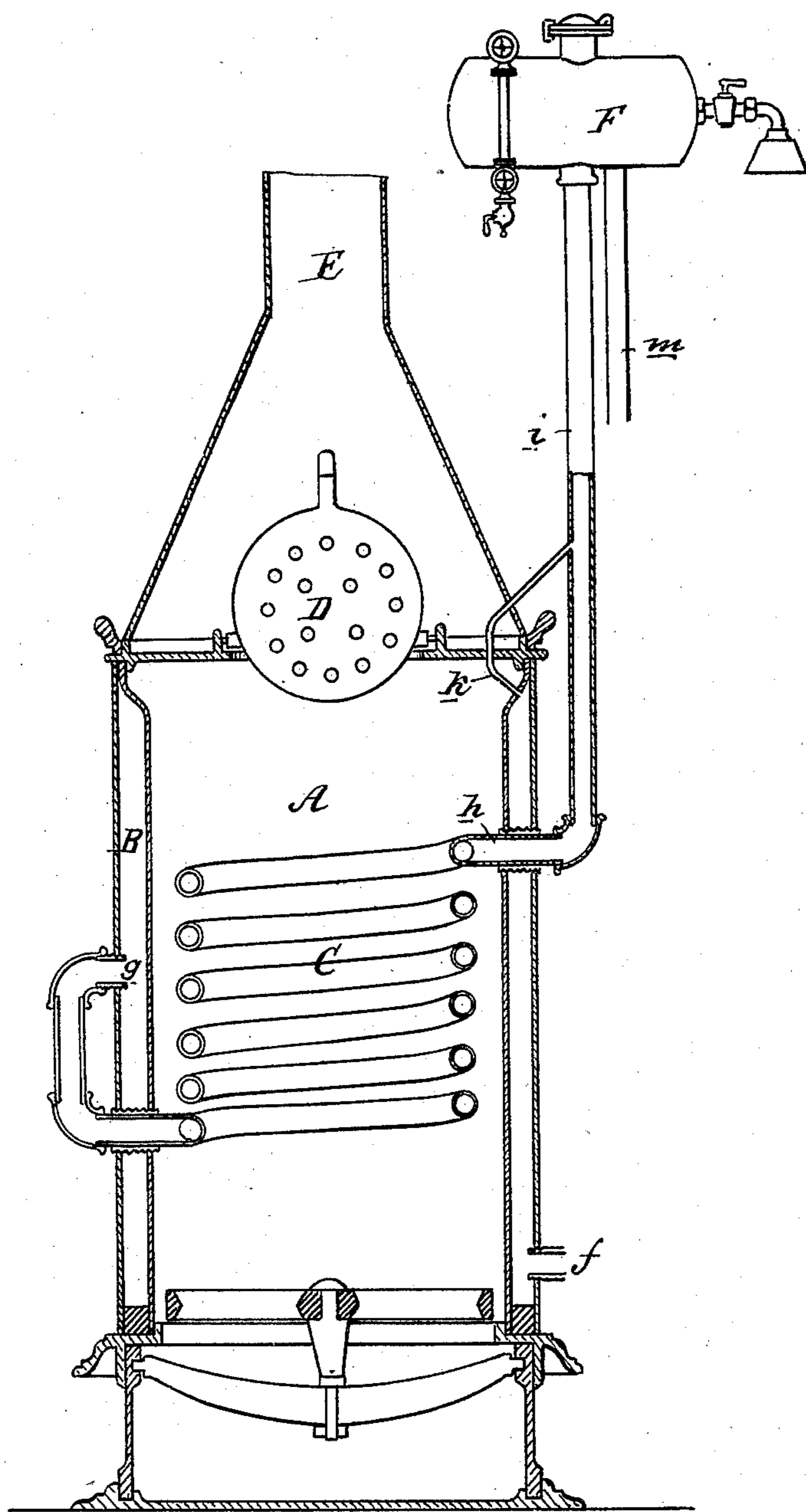
(No Model.)

P. SMITH.

WATER HEATER AND CIRCULATOR.

No. 314,735.

Patented Mar. 31, 1885.



Attest:

A. Barthel

*[Signature]*

Inventor:

Peter Smith

by his Atty Thos. S. Sprague

# UNITED STATES PATENT OFFICE.

PETER SMITH, OF DETROIT, MICHIGAN.

## WATER HEATER AND CIRCULATOR.

SPECIFICATION forming part of Letters Patent No. 314,735, dated March 31, 1885.

Application filed November 26, 1884. (No model.)

*To all whom it may concern:*

Be it known that I, PETER SMITH, of Detroit, in the county of Wayne and State of Michigan, have invented new and useful Improvements in Water Heaters and Circulators; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, which form a part of this specification.

This invention relates to certain new and useful improvements in water heaters and circulators; and it is especially designed to be an improvement upon Patent No. 251,741, dated January 3, 1882, issued to me as inventor. It is a well-known fact that water contains air in its natural state, and that if the water is heated sufficiently the water is deprived of this air, which is driven off by the heat applied. In the employment of the invention described in said Letters Patent I find that the air expelled from the water when the device is filled with water and heat applied rises to the top of the water-jacket and prevents the successful operation of the heater, which should be noiseless.

The object of the present invention is to provide means for overcoming this difficulty and prevent the air from cushioning in the wrong place.

In the accompanying drawing, which forms a part of this specification, A represents a furnace surrounded by a water-jacket, B. C is a coil of metallic pipe arranged in the interior of the furnace. D is a damper to regulate the draft, the smoke finding an exit through the smoke-stack E. So far the description is that of the invention described in the aforesaid Letters Patent. The water to be heated passes into the heater at the point *f*, circulates through the water-jacket, where it is partially heated, and thence passes out at *g* and into the coil, where the temperature of the water is raised to the proper point be-

fore it leaves the heater through the pipe *h*, which communicates with a riser-pipe, through which the water passes to the compression-drum F, from which it is compelled to flow by the compression of air in said drum through the circulating-pipe *m*, through which it reaches the heater again at *f*. A pipe, *k*, leads from the highest point of the water-space in the jacket to the rising pipe *i*, through which the air which is expelled from the water by the heat applied is allowed to escape through said riser-pipe *i* to the compression-drum F, whence it may be discharged, when necessary, by means of a petcock in the usual way.

A heater embodying my improvements has been in successful operation for the past nine months in heating a dwelling by the circulation of hot water, and with perfectly satisfactory results, running noiselessly and without the pounding which heretofore attended its use when employed for this purpose.

What I claim as my invention is—

1. A water heater and circulator consisting of an upright furnace with an inclosing water-jacket, a conduit leading into the jacket from the outside of the furnace, a coil arranged within the furnace, and having one terminal connected with the water-jacket and the other leading directly to the outside of the furnace, and adapted for connecting with a water-conveying pipe, and an escape-pipe for air, affording a communication between the jacket and the riser-pipe, substantially as described.

2. In a water heater and circulator constructed and operating substantially as described, an air-pipe communicating with the water-jacket at its highest point, and the riser-pipe, in combination with a compression-drum, substantially as and for the purposes specified.

PETER SMITH.

Witnesses:

H. S. SPRAGUE,  
CHARLES J. HUNT.