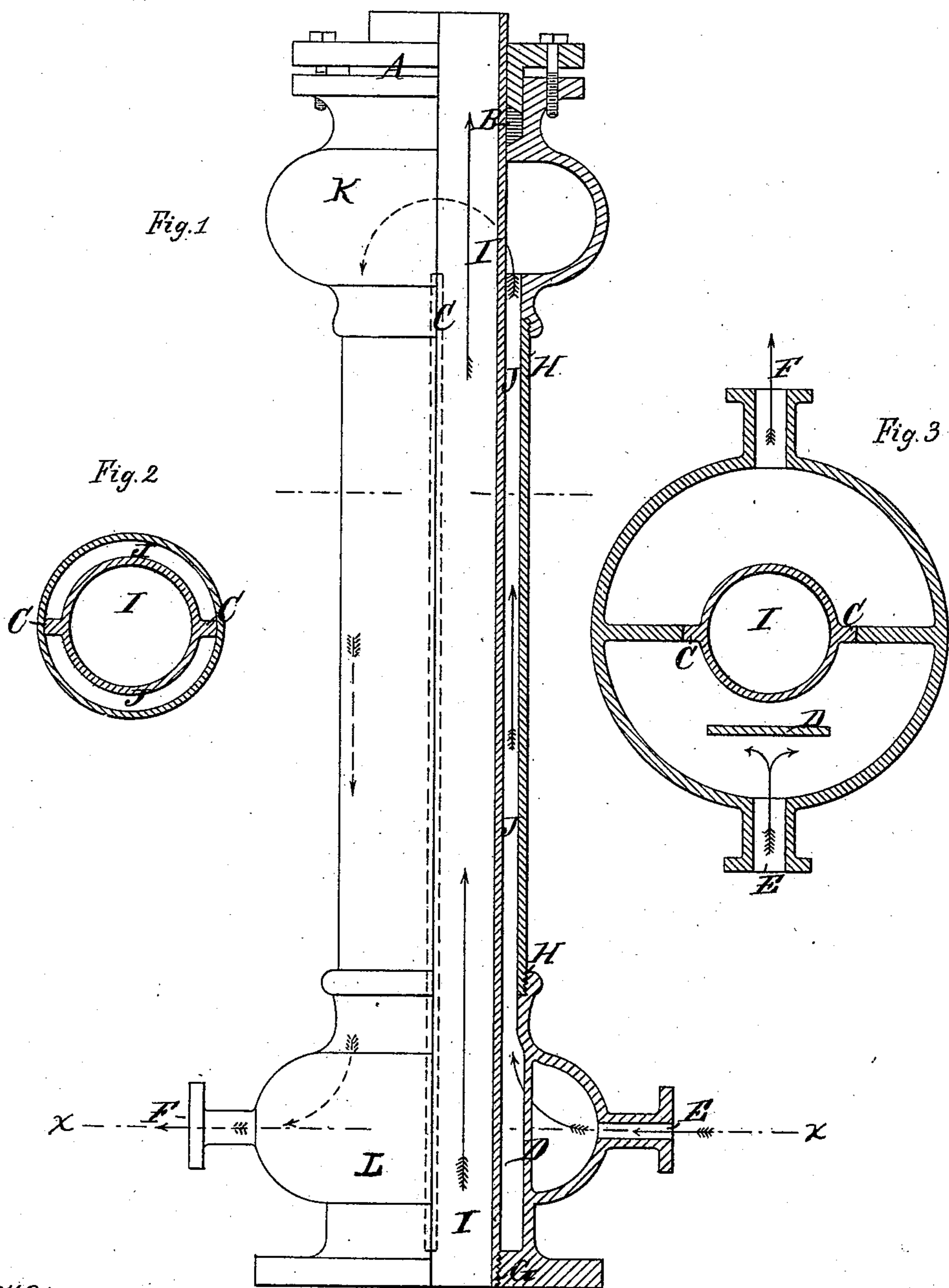


C. F. BARRETT.  
Feed-Water Heater.

No. 211,615.

Patented Jan. 28, 1879.



Witnesses:  
S. J. Gordon  
John W. Ripley

Inventor:  
Charles F. Barrett

# UNITED STATES PATENT OFFICE

CHARLES F. BARRETT, OF NEW YORK, N. Y.

## IMPROVEMENT IN FEED-WATER HEATERS.

Specification forming part of Letters Patent No. **211,615**, dated January 28, 1879; application filed October 11, 1878.

*To all whom it may concern:*

Be it known that I, CHARLES F. BARRETT, of New York, county of New York, State of New York, have invented a new and useful Improvement in Feed-Water Heaters, which is fully set forth in the following specification and accompanying drawings, in which—

Figure 1 is a longitudinal cut section of my improved feed-water heater; Fig. 2, a horizontal section thereof at the base of the upper reservoir; Fig. 3, the same at the base of the lower reservoir.

This invention is an improvement upon the feed-water heater patented to me June 12, 1877, by Letters Patent No. 191,747, and is intended to apply the principles and advantages of that contrivance to locomotive and other engines by means of the smoke-stack instead of an exhaust or other steam pipe.

In the drawings, A represents the stuffing-box gland; B, the stuffing-box; C, the circulating-plate; D, feed-water stop-plate; E, water-inlet; F, water-outlet; G, the base of the smoke-stack; H, outside jacket; I, the smoke-stack; J, the water-space; K, the upper reservoir; L, the lower reservoir.

The action of these devices is as follows: Circulating-plate C, extending from the lower

to the upper reservoir, divides the water-space J into two passages. The feed-water, entering at E, is deflected by plate D, so that it is forced up through one passage of water-space J into reservoir K, whence it flows down through the opposite passage of water-space J into reservoir L, being heated in its course through space J by the smoke, heat, and exhaust-steam passing constantly through smoke-stack I. The water, escaping by outlet F, reaches the boiler in a heated state.

No claim to novelty is made in the employment of a stack or jacket or circulating-plate or reservoirs or stuffing-boxes, as the earlier feed-water heaters of myself and other patentees contain such devices; but

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

The combination of stack I, jacket H, deflecting-plate D, circulating-plate C, reservoirs L and K, and stuffing-box B, constructed, arranged, and operating together substantially as and for the purposes set forth.

CHARLES F. BARRETT.

Witnesses:

S. J. GORDON,  
JOHN W. RIPLEY.