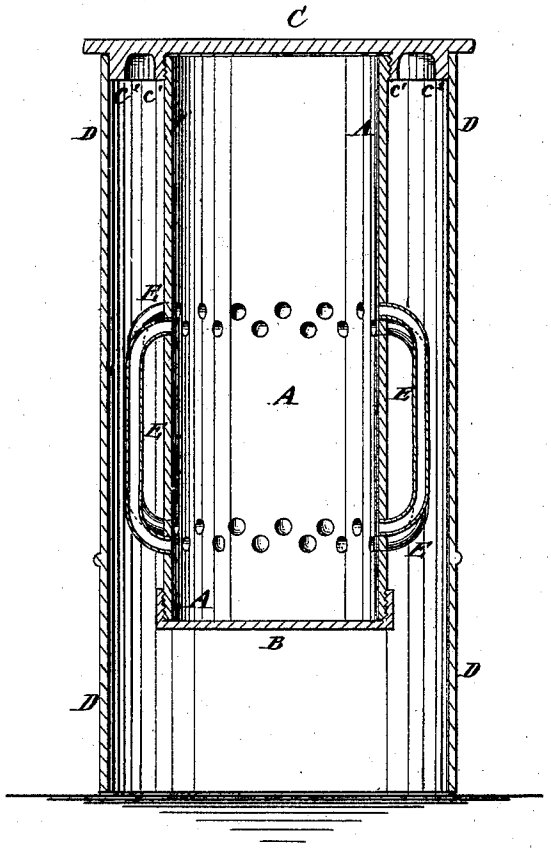
N. C. HEATON.

UPRIGHT TUBULAR-BOILER.

No. 171,017. Patented Dec. 14, 1875.



WITNESSES:

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UNITED STATES PATENT OFFICE.

NATHAN C. HEATON, OF NEW YORK, N. Y., ASSIGNOR TO WARD B. SNYDER, OF SAME PLACE.

IMPROVEMENT IN UPRIGHT TUBULAR BOILERS.

Specification forming part of Letters Patent No. **171,017**, dated December 14, 1875; application filed August 21, 1875.

To all whom it may concern:

Be it known that I, NATHAN C. HEATON, of the city, county, and State of New York, have invented a new and useful Improvement in Upright Tubular Boilers, of which the following is a specification:

The figure is a vertical section of my improved boiler.

The object of this invention is to furnish improved vertical boilers for engines of one, two, or three horse power, for driving machinery in shops, and for various other purposes, which shall be small, compact, and safe, and which shall be inexpensive in manufacture.

The invention consists in the combination of a case, boiler, and cap, as hereinafter described.

A represents the body or shell of the boiler, upon the lower end of which is secured a cap-plate, B. C is the top cap-plate of the boiler, which is made of a greater diameter than the diameter of the boiler, and has two ring-flanges, c^1 c^2, formed upon its lower side. The inner flange c^1 has a screw-thread cut in it, and is screwed upon the upper end of the boiler A. The outer flange c^2 is designed to receive the upper end of the case D of the furnace, which case surrounds and is made larger than the boiler A, and extends far enough below it to give space for the fire-box, grate, and ash-pit. The case D is provided with a door in its lower part for the insertion of the fuel, and with an outlet in the upper part for the escape of the smoke and the other products of combustion. E are a set of upright tubes placed at a little distance from the lower part of the shell of the boiler A, and the upper and lower ends of which are bent inward, pass through, and are secured in holes in the shell of the said boiler A, so that the water in the boiler may circulate freely through the said tubes. With this construction the products of combustion, as they pass up around the boiler A, also pass around the tubes E, so that the water may be in contact with a very large heating-surface, and may thus generate steam very rapidly. The boiler is provided with feed-pipes, steam-pipes, gage-cocks, safety-valve, and the other ordinary appliances of a boiler, which appliances are not shown in the drawing.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

The combination of boiler A and case D, with cap C, having flanges c^1 c^2, of which the former is threaded on the inside and works on the outside threaded edge of boiler while the latter rests against the inside edge of case, as shown and described, for the purpose specified.

NATHAN C. HEATON.

Witnesses:
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