R. Wilson,

Steam-Boiler Condenser.

No. 13,193. Patented July 3, 1855.

Fig. 2.

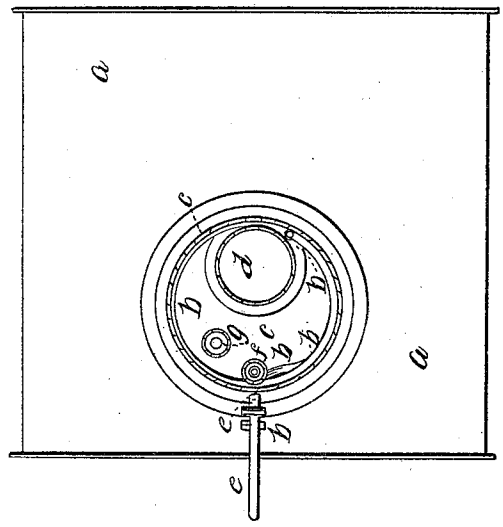
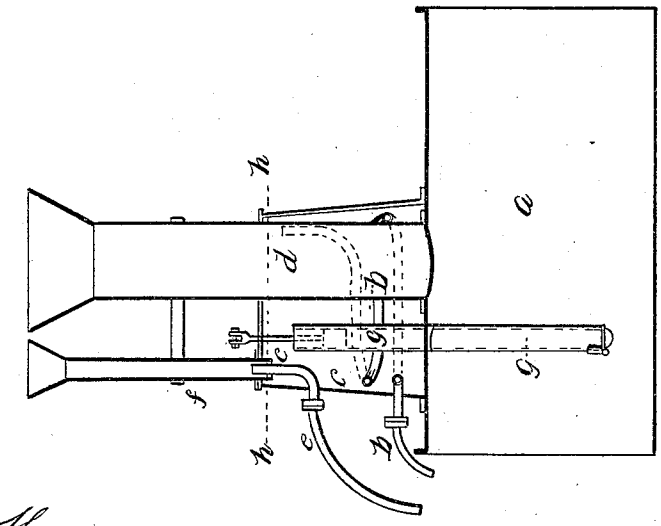


Fig. 1



Witnesses:
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UNITED STATES PATENT OFFICE.

ROBERT WILSON, OF COLUMBUS CITY, IOWA.

APPARATUS FOR HEATING FEED-WATER TO STEAM-BOILERS.

Specification of Letters Patent No. 13,193, dated July 3, 1855.

To all whom it may concern:

Be it known that I, ROBERT WILSON, of Columbus City, county of Louisa, and State of Iowa, have invented a new and useful Improvement in Feed-Water-Heating Apparatus; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the annexed drawings and to the letters of reference marked thereon.

Figure 1, is a longitudinal and vertical section. Fig. 2, is a sectional plan in the line *h*—*h*, Fig. 1.

a, Figs. 1 and 2, is a portion of the boiler.

b, is the steam escape pipe.

c, is the cistern.

d, is the smoke stack.

e, is the cold water pipe.

f, is the exit pipe of the cistern.

g, is a pipe forming a communication between the boiler and cistern and has within it a piston to force the water down from the cistern into the boiler, and has also a valve at its lower end so as to keep closed when the piston is not in action.

To enable others skilled in the art to make and use my invention I will proceed to describe its construction and operation.

A cistern *c*, Figs. 1 and 2, is constructed upon that end of the boiler which is nearest the engine, and is 3 or 4 feet high and steam tight. The scape pipe, *b*, from the cylinder enters the cistern near the bottom and winds one and a half or more times around the inside of the cistern, and has a tight valve on the upper end to raise and allow the escape of steam and to close and prevent the ingress of water from the cistern.

An exit pipe *f* passes from near the top of the cistern, and is bell mouthed at top to collect the condensed steam as said steam strikes the cold air, and into the bottom of this pipe there enters another, *e* Fig. 1, from the force pump and conveys constantly a jet of cold water with the exit pipe which mingles with the escaping steam and condenses it, and the water thus reformed falls back into the cistern.

There is a communicating pipe *g*, between the cistern and boiler with a force pump within it and a close valve at its lower end; the force pump to urge the water from the cistern into the boiler and thus keep it supplied, and the valve to prevent the escape of steam from the boiler into the cistern. The cistern may be supplied with a cock to draw off the water as may be required. This water may be drawn off, cooled, and returned to cistern and boiler and thus the same water repeatedly used, which—in a country where water is difficult of access—is a great consideration. In navigating muddy rivers as well as the ocean the benefit will be found to be of a very decided character. Hot water is supplied to the boiler at the will of the engineer.

The position of the smoke stack, *d*, Fig. 1, is optional, and may be constructed through the cistern or not.

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

The arrangement of the feed water pipe, *e*, opening within the exit steam pipe *f*,—in relation to the exhaust steam pipe, *b*, within the feed water reservoir, whereby the entire exhaust steam may be condensed and the entire feed water pass through the reservoir, operating as, and for the purposes, herein set forth.

R. WILSON.

Signed in presence of—
GEO. C. THOMAS,
R. T. BIRCHETT.