

D. L. Pickard,
Flue and Tubular Boiler.
N^o 1828. Patented Oct. 14, 1840.

Fig 3.

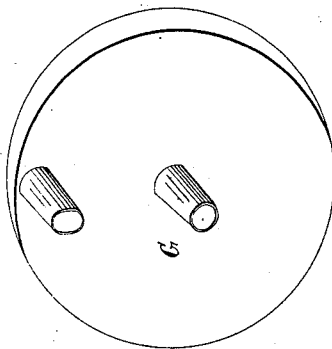


Fig 2.

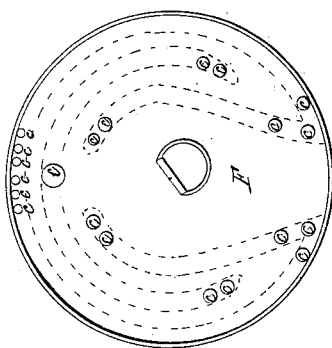
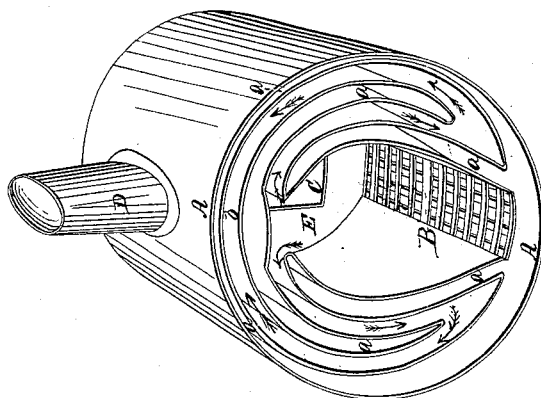


Fig 1.



UNITED STATES PATENT OFFICE.

DANIEL L. PICKARD, OF HARTLAND, NEW YORK.

BOILER FOR HEATING WATER FOR CULINARY OR OTHER PURPOSES.

Specification of Letters Patent No. 1,828, dated October 14, 1840.

To all whom it may concern:

Be it known that I, DANIEL L. PICKARD, of Hartland, in the county of Niagara and State of New York, have invented a new and Improved Boiler for Boiling Water for Culinary and other Purposes and which May also be Used for Generating Steam; and I do hereby declare that the following is a full and exact description thereof.

Figure 1, in the accompanying drawing, is a perspective representation of my boiler, in the form which I prefer, but it may be varied in this particular while the principle of construction will remain unchanged.

A, A, is the outer cylindrical case, which, for ordinary purposes, may be made of tin plate. Within this is the furnace, or fire chamber, B, which is to be supplied with fuel through the opening C, furnished with a door, in the ordinary manner, that opening being in the front end, or head, E, of the boiler. Between the fire chamber B, and the cylindrical case A, the space is divided into alternate flues, and water-chambers, by metallic partitions, arranged as shown in the drawing; the flues and the direction of the draft from the fire chamber through them, are designated by the arrows. The water spaces are marked *a, a, a, a*. The escape pipe D, extends through the outer water space *a', a'*, into the upper flue space *b*. The lower edges of the plates which form the walls of the fire chamber are soldered to the outer case A, along the sides of the furnace grate B; and the front edges of all the plates which divide the water spaces and flues from each other are soldered to the front plate, or head of the boiler, E. The plate, or head, which forms the back end of these flues and water spaces, and which may be called the false head, is shown at F, Fig. 2; this being removed from its place for the purpose of showing the arrangement of the interior of the boiler; but to this head when in place are soldered the back edges of all the plates forming the flues and water spaces; the direction of these being shown by the dotted lines. The openings *c, c, c, c*, through this head, lead into the water spaces, and allow the water to flow through them into a bulkhead, or end water space, which is formed by placing the false head F, an inch, more or less, within the end of the cyl-

inder A, A; and when the true head G, Fig. 3, is soldered, or otherwise securely fastened, on to the end of the cylindrical case, the boiler is complete. In the front head there may be cocks for drawing off the water, situated at the lower part of the water space, and there may also be tubes so furnished, and also for supplying water, and for the escape of steam, in the back end, or head, G; there may also be a spout in this head, directed obliquely upward, like the spout of a tea-kettle, through which water may be poured; and the whole apparatus may, in fact, constitute a tea-kettle containing its own furnace, or fireplace, and the water in which may be made to boil in an incredibly short space of time, and that by a very small quantity of burning fuel placed within the fire chamber. An opening, or openings, for the escape of steam, may be made through the top cylinder, or it may be allowed to escape through an opening made for the supplying of water.

This boiler may be used as a steam-generator, and in this case a steam chamber of any desired form, or capacity, may be placed above the boiler and connected with it by means of a tube. When used, the boiler may be placed in a fire-place, or in any other convenient situation, resting upon bricks, or upon legs; or it may be supported in any other way. This boiler may vary in size, from the capacity of an ordinary tea-kettle to that of a large boiler for domestic, or for manufacturing, purposes, wherever boiling water is required; and it will be found to be more economical in the use of fuel than any other known boiler.

Having thus fully described the manner in which I construct my boiler, what I claim therein as constituting my invention, and desire to secure by Letters Patent, is—

The manner in which I have combined and arranged the respective parts, consisting of the exterior case, the furnace, the convoluted flues and water spaces, and the end water space, or bulkhead, all constructed substantially as herein set forth.

D. L. PICKARD.

Witnesses:

THOS. P. JONES,
B. R. MORSELL.