M. W. SHAPLEY.

Steam-Boilers.

No. 147,437. Patented Feb. 10, 1874.

FIG. 1

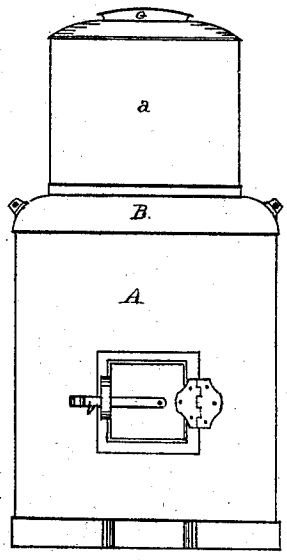


FIG. 2

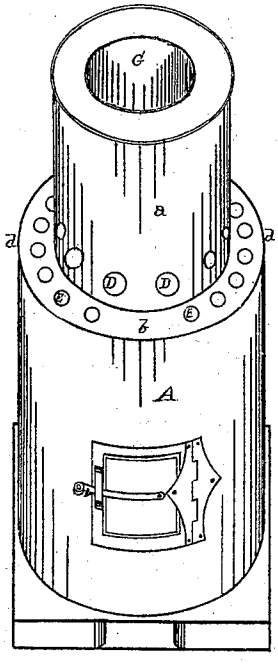


FIG. 3

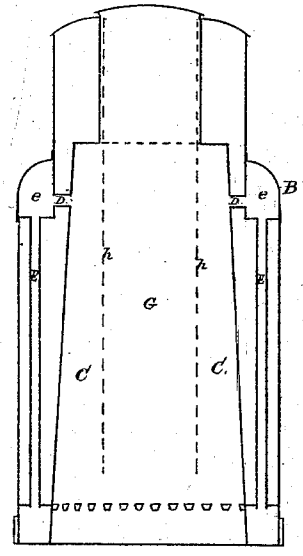


FIG. 4

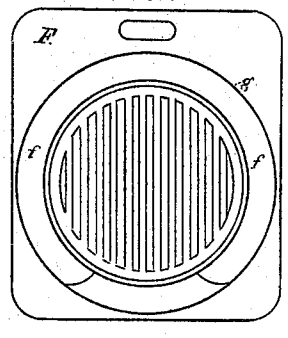


FIG. 5

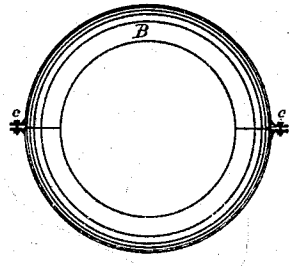
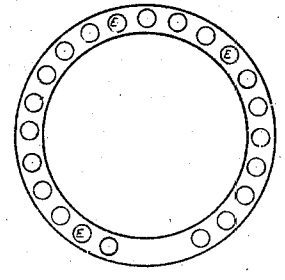


FIG. 6



WITNESSES

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IMPROVEMENT IN STEAM-BOILERS.

Specification forming part of Letters Patent No. **147,437**, dated February 10, 1874; application filed January 16, 1874.

To all whom it may concern:

Be it known that I, M. W. SHAPLEY, of Binghamton, Broome county, New York, have invented certain Improvements in Steam-Boilers, of which the following is a specification:

This invention relates to the combination and arrangement of an upright boiler with a conical fire-box, and horizontal and vertical tubes, connected by a chamber formed by an outside jacket, in such a manner that the heat and smoke shall pass from the upper end of the fire-box into said chamber, and descend through the vertical tubes into the flue below; also, in combination with the same, a vertical tube or chamber for the receptacle and automatic supply of feed, when required, the object of the invention being to economize as much fire-surface as possible to facilitate the cleaning and repairing of the parts, and to diminish the expense of manufacturing.

Figure 1 in the accompanying drawing is a view of a boiler embodying my invention. Fig. 2 is a perspective view of the same, with the jacket and tube for the receptacle of fuel removed, showing the ends of the horizontal and vertical tubes. Fig. 3 is a vertical transverse section illustrating the conical fire-box, the position of the tubes, and by the vertical dotted lines the tube or chamber for the receptacle of fuel. Fig. 4 is a plan of the base which supports the boiler, showing the fire-grate and lower flues. Fig. 5 is the jacket detached, showing the manner of connecting the two sections. Fig. 6 is a view, showing the lower end of the boiler, and the ends of the vertical tubes.

A is the boiler, the upper part of which is made smaller than the diameter of the body of the boiler, which leaves a space, *b*, between the two cylinders for the jacket B, which is made in two sections, and secured in position by screw-bolts *c c*, or otherwise fastened, as shown by Fig. 5, which jacket is fitted to the rim or edge *d* of the body of the boiler, and made to clasp the upper compartment *a*, which forms a connecting-chamber, *e e*, for the passage of heat and smoke. C is the fire-box, which is made in a conical form to allow of sufficient water-space at the connection of the upper and lower compartments of the boiler. D D are the horizontal tubes, which pass through the shell of the upper compartment of the boiler. These tubes connect, by means of the jacket-chamber *c*, with the vertical tubes E E, which are placed between the fire-box C and the exterior plate of the body of the boiler, and connect with the flue *f* in the base F, on which the boiler is supported, and retained in position by closing the end, shown by Fig. 6, upon the flange *g*, which allows of its ready removal for cleaning or repairs. G is the tube or chamber for the receptacle and automatic supply of fuel. Its position is shown by the vertical dotted lines *h h*. This arrangement may be dispensed with, and the upper compartment *a* left to its full capacity for water and steam, as shown by the dotted line across the opening for the tube G.

I claim as my invention—

The combination, with the boiler A and jacket B, of fire-box C, horizontal tubes D, vertical tubes E, base F, and tube for receptacle of fuel G, all constructed substantially as herein described, for the purpose set forth.

MARTIN W. SHAPLEY.

Witnesses:

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