

F. H. PURINTON.
Sectional Steam-Boiler.

No. 215,670.

Patented May 20, 1879.

Fig. 2.

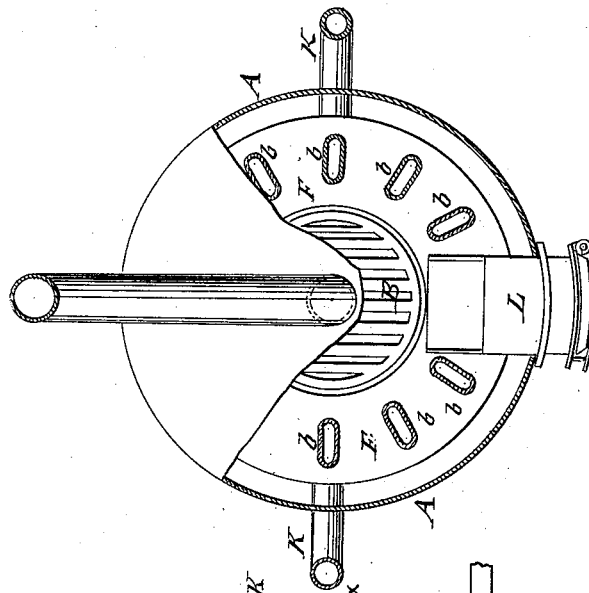
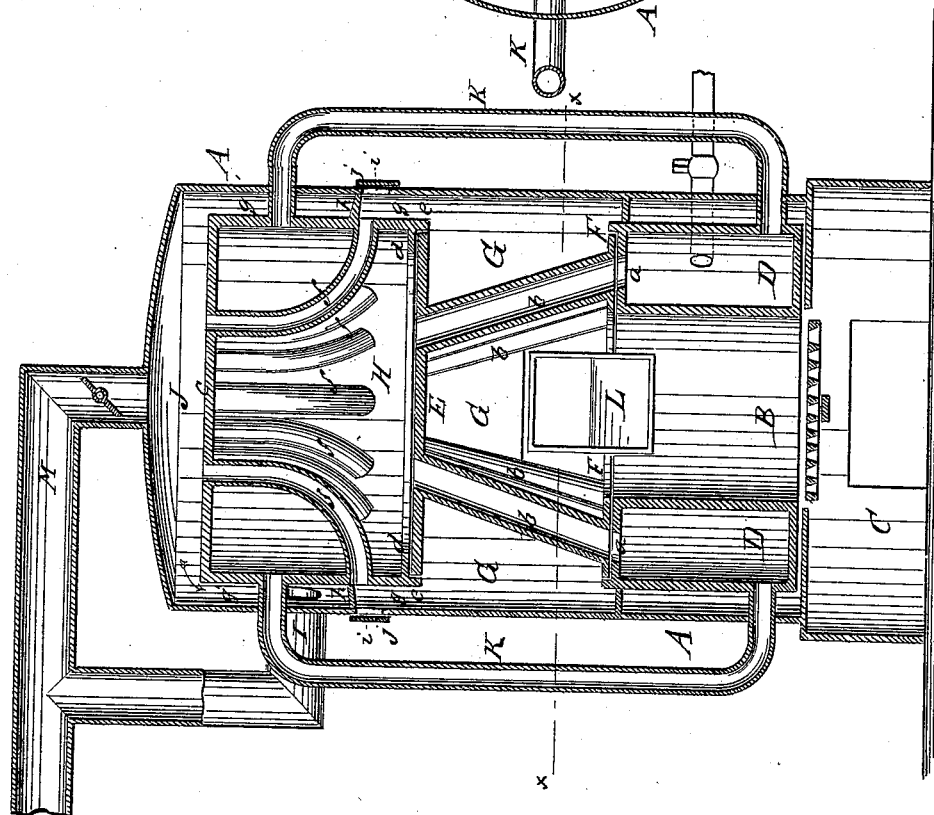


Fig. 1.



WITNESSES:

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FRANK H. PURINTON, OF BRUNSWICK, MAINE.

IMPROVEMENT IN SECTIONAL STEAM-BOILERS.

Specification forming part of Letters Patent No. **215,670**, dated May 20, 1879; application filed February 7, 1879.

To all whom it may concern:

Be it known that I, FRANK H. PURINTON, of Brunswick, in the county of Cumberland and State of Maine, have invented a new and Improved Sectional Steam-Boiler, of which the following is a specification.

The object of this invention is, first, to obtain a more complete exposure of the water-flues to the heat; secondly, to increase the length of the fire-flues, and thereby increase the heating-surface, and an arrangement of said flues that permits their being cleaned from the exterior and without extinguishing the fires; and, lastly, it has for its object to obtain a more thorough circulation of the water between the upper and lower sections of the boiler.

The invention will be first described in connection with the annexed drawings, forming part of this specification, and then particularly ascertained in the claim.

In the accompanying drawings, Figure 1 is a vertical section of a boiler provided with my improvements, and Fig. 2 is a horizontal section of the same on line *x x*.

Similar letters of reference indicate corresponding parts.

Referring to the drawings, A is the shell of the boiler; B, the fire-chamber, and C the ash-pit.

D is the lower section or water-chamber, surrounding the fire-chamber, in the top plate whereof are openings *a*.

E represents the crown of the fire-chamber, serving also as a flue-plate. This crown and flue-plate is connected by water-flues *b* with a ring-flange, F, that sits upon the top plate of the water-chamber D, so that the openings *a* in said crown coincide with the flues. Flues *b* are inclined toward each other in the form of a cone, and their upper ends are passed through crown E.

The internal diameter of the ring-flange F is the same as that of the fire-chamber, so as to permit an uninterrupted passage of the products of combustion into the combustion-chamber G, between the upper and lower sections of the boiler, and around and about the water-flues *b*.

H represents the upper section of the boiler,

cylindrical in form, with top flue-plate, *c*, and annular flanged bottom *d*, which rests upon the crown E, (a drop-flange, *e*, surrounding the edge of said crown and holding the section H in place.)

The fire-flues are designated by the letter *f*. They are inclosed wholly within the section H, and their upper ends open through the top plate, *c*, while their lower ends are curved outward, opening through the sides of the section into the space *g*, surrounding the said section and communicating with the combustion-chamber G.

Just above the entrance to the fire-flues *f*, in the space between the outer walls of the section H and the shell, is a division-flange, *h*, closing the space between the walls and shutting off communication between the combustion-chamber and the space surrounding the section above the said flange. This is to compel the products of combustion to pass into the fire-flues, and to shut off the space *g'*, surrounding the section H above. This is essential, as the products of combustion, passing through the fire-flues into the dome J, proceed thence downward, as indicated by the arrows, into space *g'*, and then escape through pipe I.

Opposite the entrance to each fire-flue *f'* an opening, *i*, is made in the shell A, closed by a sliding or hinged door, *j*, as may be preferred. The object of this arrangement is to enable the fire-flues to be cleaned from the exterior without extinguishing the fires.

K represents the water-circulation pipes. They are placed outside, the upper end being entered through the shell and into the casing of the section H near the top, while their lower ends are entered into the lower water-chamber, D, near its bottom.

The steam in the upper part of section H, entering the upper end of pipe K, exerts a pressure upon the water in the lower part of the pipe and forces it out into the water-section D, and the steam delivered into section D tends to heat the water as it is pumped in through pipe *l*.

The fuel-chute and fire-door are designated by the letter L.

Having thus described my invention, I claim

as new and desire to secure by Letters Patent—

The combination of the lower section or water-chamber, D, surrounding the fire-chamber B, and provided with inclined pipes *b* and crown-plate E, and the upper section, H, having a flanged bottom, *d*, adapted to rest upon the crown-plate E of the lower section, and provided with fire-flues *f*, communicating with

the dome J, and the combustion-chamber G, with each other, and with the shell A and the outside water-pipes, K, connecting the upper and lower sections, substantially as shown and described, and for the purpose set forth.

FRANK HUNTINGTON PURINTON.

Witnesses:

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