

(No Model.)

2 Sheets—Sheet 1.

S. T. WILLIAMS.
STEAM BOILER.

No. 537,331.

Patented Apr. 9, 1895.

FIG. 1.

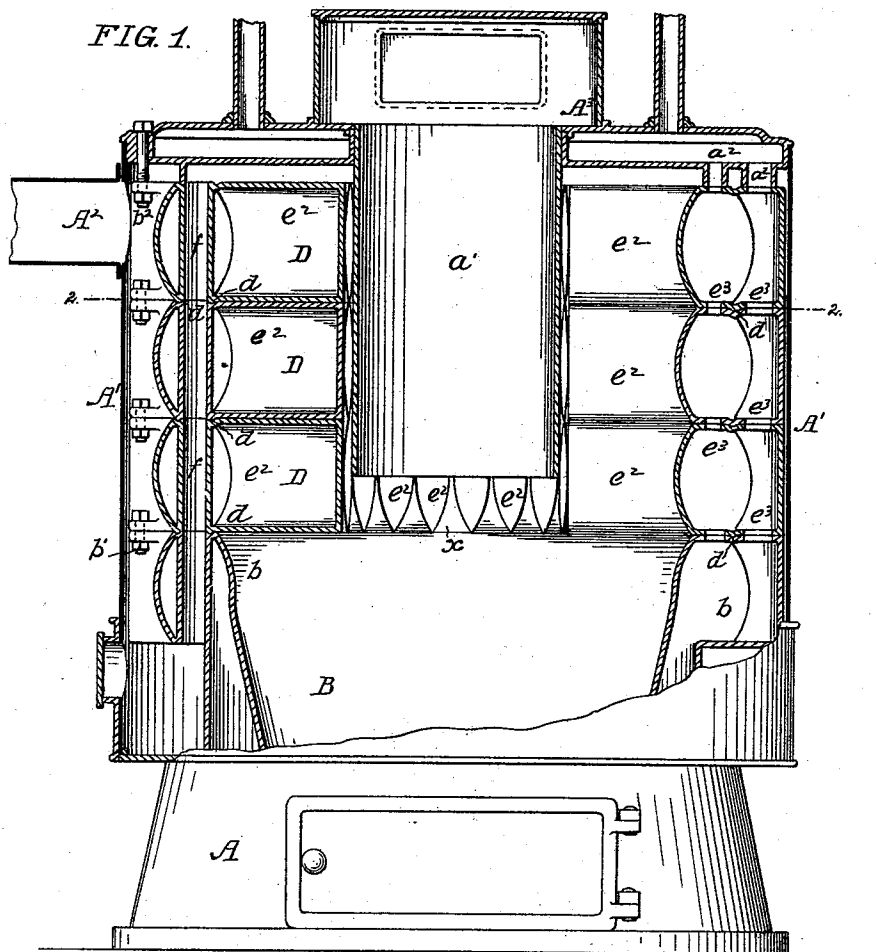


FIG. 3.

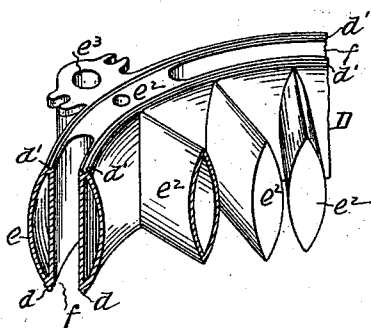
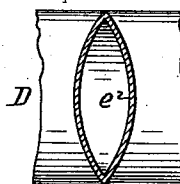


FIG. 4.



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FIG. 2.

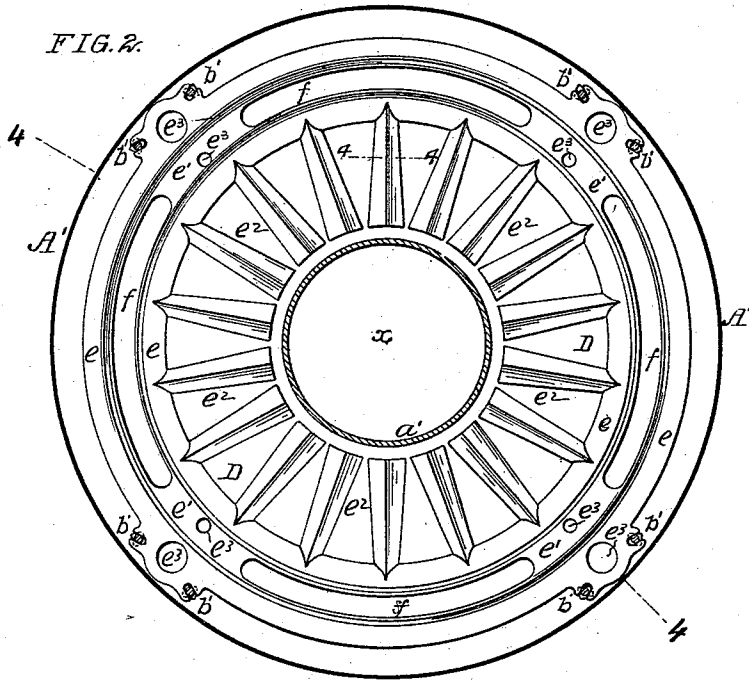
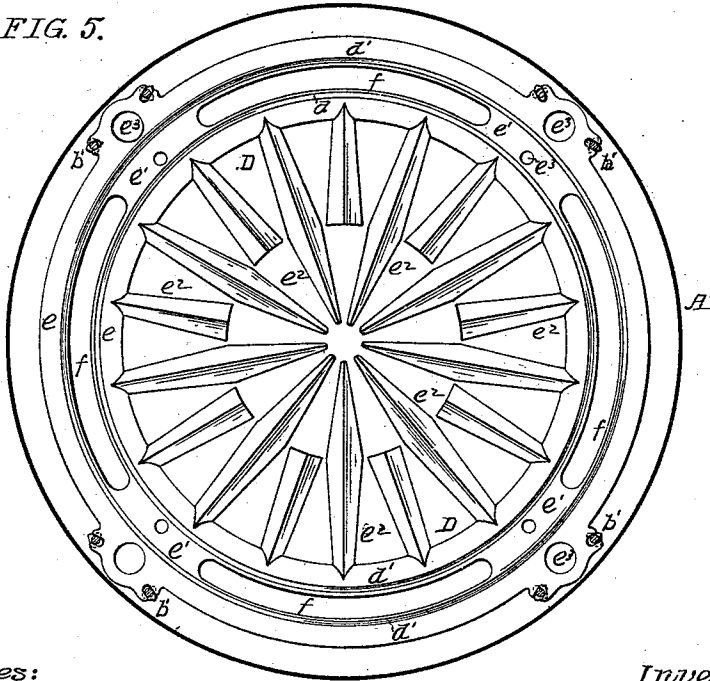


FIG. 5.



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UNITED STATES PATENT OFFICE.

SAMUEL T. WILLIAMS, OF PLAINFIELD, NEW JERSEY, ASSIGNOR TO THE
MODEL HEATING COMPANY, OF PHILADELPHIA, PENNSYLVANIA.

STEAM-BOILER.

SPECIFICATION forming part of Letters Patent No. 537,331, dated April 9, 1895.

Application filed October 29, 1894. Serial No. 527,399. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL T. WILLIAMS, a citizen of the United States, and a resident of Plainfield, New Jersey, have invented certain Improvements in Steam-Boilers, of which the following is a specification.

My invention relates to certain improvements in steam generators which are made in sections one section mounted upon another.

The object of my invention is to so construct the sections that the surface of the sections will be exposed to the products of combustion to the greatest advantage and to so make the sections that soot will not accumulate upon them.

A further object of the invention is to securely couple the parts together to prevent leakage and to utilize the center portion of the furnace as a magazine.

In the accompanying drawings, Figure 1 is a view in elevation of my improved steam generator, partly in section. Fig. 2 is a sectional plan view on the line 2—2, Fig. 1. Fig. 3 is a sectional perspective view of one of the sections. Fig. 4 is a sectional view on the line 4—4, Fig. 2. Fig. 5 is a view of a modification.

A is the base of the furnace; B, the fire pot so formed in the present instance that it is one of the sections of the boiler, being hollow as shown clearly in Fig. 1, and having a rim *b* also hollow which is so shaped that it can be readily coupled to the other sections of the boiler.

D are the ring sections, three in the present instance. The lower section is mounted on the rim *b* of the fire pot and secured thereto by bolts *b'* which pass through ears on each section. The other sections are mounted as shown, and secured together by bolts *b'*. In the drawings I have shown three ring sections, but it will be understood that any number may be utilized without departing from my invention. On the under side of each ring section are ribs *d d* which rest in grooves *d'* on the upper side of the adjoining section, so that a snug fit is insured. The rim of each section, as shown in Fig. 2, is made in two parts *e e* connected together by necks *e'*, thus forming between the neck flues *f* for the pas-

sage of the products of combustion. In the necks *e'* are passages *e³* forming communication between the several sections so that a complete circulation is maintained; and projecting from the rim is a series of spokes *e²* which are shaped as clearly shown in Fig. 2, and form the walls of a central passage *x*, which I utilize as a magazine for the furnace. The spokes are preferably tapered in form, being narrower at the points where they join the rim than at their extremities, and are double convex in cross section in the present instance, with the long axis vertical, so that the spokes do not interfere with the passage of the products of combustion through the furnace, and the form of the spokes prevents the accumulation of soot.

A' is the outer casing, forming an up-take flue for the products of combustion to the chimney flue A². Baffle plates may be ranged within the uptake flue if desired.

The cap A³ of the furnace is made hollow and extending from the cap is the magazine casing *a'* which extends into the space *x* formed by the spokes to a point near the upper edge of the fire chamber. The cap is secured to the upper ring section by bolts *b²*, as shown in Fig. 1, and communicating with the upper section through passages *a²*.

In some instances the ring sections may be made as shown in Fig. 5, in which some of the spokes extend to the center, thus utilizing the space *x* as a heating space and dispensing with the magazine.

It will be understood that my improved steam boiler furnace can be used simply as a water heater as it is especially applicable for use in heating buildings and therefore can be used either in connection with a steam system or with a hot water system.

I claim as my invention—

1. The combination in a steam boiler, of the fire pot section, a series of separate ring sections mounted one above another and upon the fire pot section, each ring section composed of a rim and spokes, said spokes extending from said rim on radial lines toward the center, each spoke being oblong in cross section with the long axis vertical, substantially as described.

2. The combination of the fire pot section, a series of ring sections mounted one above another upon the fire pot section, each ring section composed of a rim and spokes extending toward the center, the rim having vertical passages therein forming when mounted in series return flues, substantially as described.

3. The combination of the hollow fire pot section having a rim, a series of ring sections mounted one above another upon the fire pot section and connected thereto, each ring section having a rim and spokes, said spokes extending toward the center from the rim, passages in the rim for the products of combustion, each spoke being tapered and oblong in cross section, substantially as described.

4. The combination of the fire pot section, the ring sections mounted one above another

upon the fire pot, each ring section having a rim and spokes, said spokes extending toward the center and forming a central open space with a magazine casing extending into said space, substantially as described.

5. The combination in a boiler, of the ring sections mounted one upon another, each section comprising an outer rim and spokes extending inwardly therefrom, said spokes being narrower at the points adjacent to the rim than at the inner ends and oblong in cross section, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

SAMUEL T. WILLIAMS.

Witnesses:

WILL. A. BARR,
HARRY SMITH.