# E. H. FRAZIER.

## KITCHEN-BOILERS.

No. 193,860. Patented Aug. 7, 1877.

FIG. I

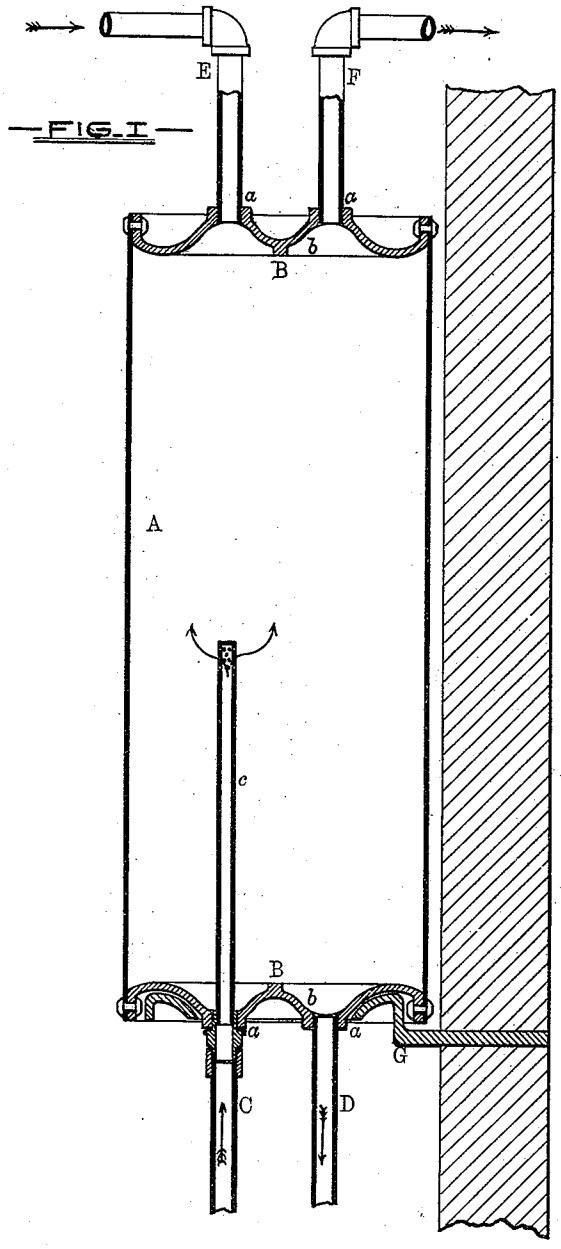



FIG. II

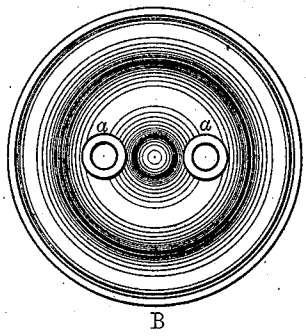
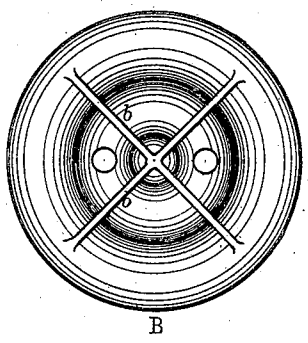



FIG. III




WITNESSES.

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# UNITED STATES PATENT OFFICE.

EDWARD H. FRAZIER, OF BALTIMORE, MARYLAND.

## IMPROVEMENT IN KITCHEN-BOILERS.

Specification forming part of Letters Patent No. **193,860**, dated August 7, 1877; application filed January 20, 1877.

*To all whom it may concern:*

Be it known that I, EDWARD H. FRAZIER, of the city of Baltimore and State of Maryland, have invented certain Improvements in Kitchen-Boilers, of which the following is a specification; and I do hereby declare that in the same is contained a full, clear, and exact description of my said invention, reference being had to the accompanying drawing, and to the letters of reference marked thereon.

This invention relates to certain improvements in a boiler to be connected by means of pipes to the fire back or heater of a range, stove, &c., to receive and hold the hot water delivered from the same.

It consists in a peculiar construction of the heads of the boiler and of the stand or support, whereby the said boiler is secured to a wall or other stationary object.

The invention further consists in a novel arrangement of the pipes before alluded to as connecting the boiler with the fire back or heater of the range, &c.

In the description of my invention which follows, reference is made to the accompanying drawing, forming a part of this specification, and in which—

Figure 1 is a vertical section of my improved boiler; Fig. 2, a plan of one of the heads of the same as seen from the exterior thereof; and Fig. 3, a reversed view of the said head.

Similar letters of reference indicate similar parts in all the figures.

A is the shell of the boiler, cylindrical in form, and constructed, preferably, of galvanized sheet-iron. B B are the heads of the boiler, into which the pipes C, D, E, and F are screwed or otherwise fastened. The heads B consist of flanged plates, practically of a common thickness, having annular corrugations or provided with a series of annular grooves, arranged in such manner, with respect to each other, as to present from either side alternate annular projections and depressions. The said heads are also provided with cylindrical lugs *a* on the outer sides thereof, into which the pipes C, D, E, and F are secured.

The object in constructing the heads B with the annular projections and grooves, as described, is to give to the same a certain inherent rigidity to resist external and internal pressure, which rigidity is unattainable with the same thickness of metal in a flat-head or one of a concavo-convex form of equal depth. The stiffness or rigidity of the heads is further increased by casting upon their inner surfaces a system of radial ribs, *b*, of a depth corresponding to that of the annular projections on the same.

In order to make the boiler reversible, or to adapt either end thereof as its base, the pipes C, D, E, and F occupy the same relative positions with regard to the shell of the boiler. In the present case the pipes C D are, respectively, arranged to connect with the upper and lower portions of the fire-back, and the direction of the currents of water therein are indicated by the arrows. The pipe E conducts cold water from the service-pipe to the boiler, and, if desired, may have an extension thereof to carry the cold water to near the central or lower portions of the same. The pipe F is the outlet for the hot water, and leads to any desired part of the building.

It is usual in kitchen-boilers to connect the hot-water pipe leading from the fire-back to the side of the shell, and at such distance above the lower head as will prevent the chilling of the hot water delivered by contact with the body of cold water at the bottom of the boiler. This mode of connecting the hot-water pipe to the boiler is expensive, as it is necessary to rivet a piece of thick metal to the shell in which to cut a thread of sufficient length to firmly hold the end of the pipe.

As herein shown, the hot water is delivered at the bottom head, and is conducted to any required height by means of a supplemental pipe, *c*, screwed in the end of the delivery-pipe.

The boiler, although represented as occupying a vertical position, may, however, be placed horizontally, but with a sacrifice of the benefits arising from the arrangement of the supplemental pipe *c*, as described.

G is the support for the boiler, consisting of a circular plate having annular corrugations corresponding to those on the lower head, and a bracket or side projection for insertion in a wall or attachment to any stationary object. The support G has a circular central opening, through which the attachment of the lower pipes is made. This form of support has the

advantage of preventing the lateral displacement of the boiler, and, by the lower edge of the circular opening being above the outer surfaces of the lugs *a*, the fitting of the pipes C D to their places is not interfered with.

Having thus described my invention, what I claim as new, and wish to secure by Letters Patent of the United States, is—

1. In a kitchen or range boiler, the heads thereof consisting of flanged plates provided with the annular corrugations or annular grooves and ribbed inner surfaces, substantially as set forth.

2. In combination with the heads of a kitchen or range boiler, the pipes C, D, E, and F, relatively arranged with respect to the said heads, substantially as described.

3. A kitchen or range boiler having annular grooved and ribbed heads at each end thereof, as described, the said heads being provided with cylindrical lugs *a* and fitted with pipes C D E F, as and for the purposes specified.

In testimony whereof I have hereunto subscribed my name this 1st day of December, A. D. 1876.

EDWARD H. FRAZIER.

Witnesses:

MARTIN GARDNER,

H. WALLACE.