

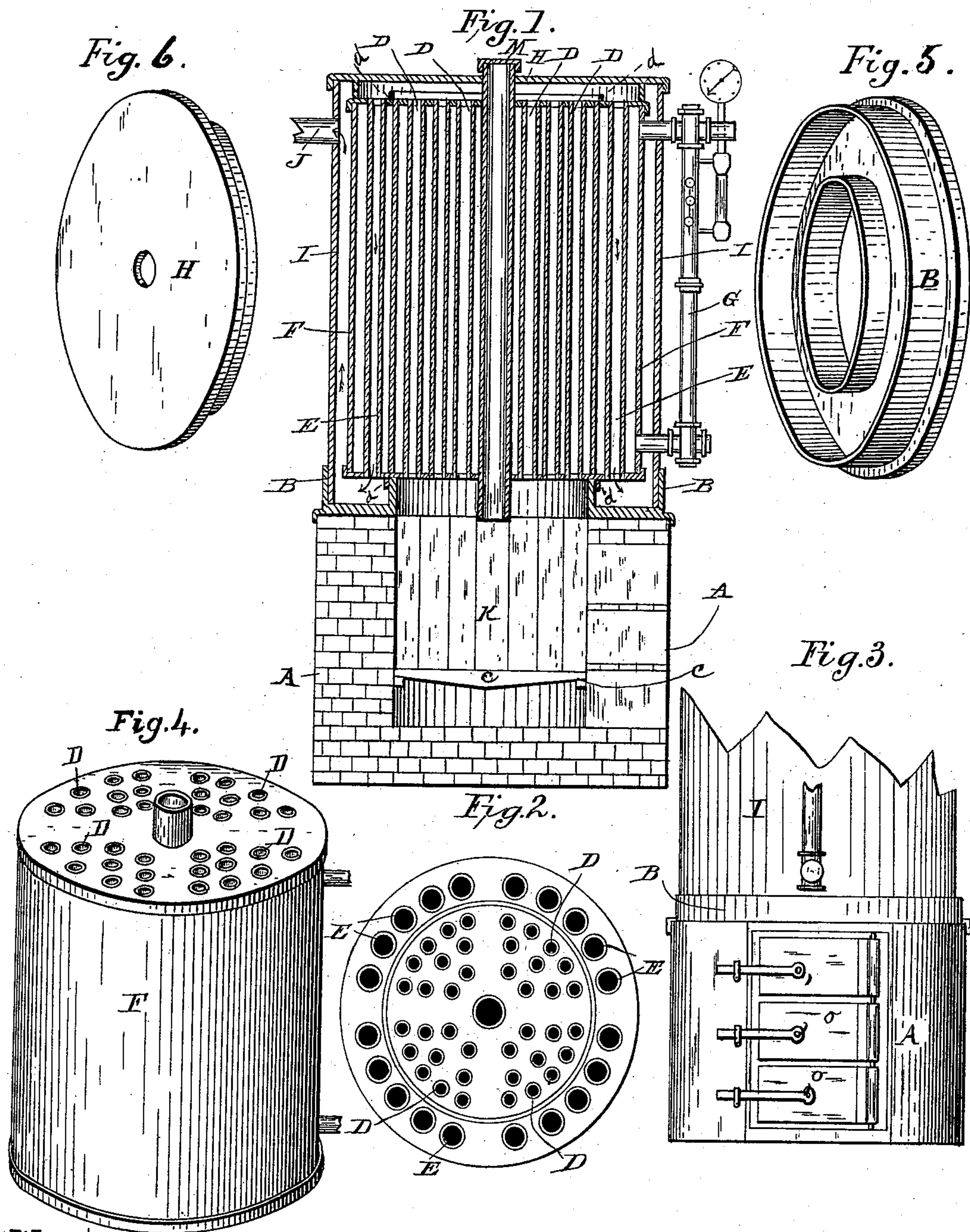
(No Model.)

J. C. & G. B. GIBBONS.

## STEAM AND WATER BOILER.

No. 364,100.

Patented May 31, 1887.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

JAMES C. GIBBONS AND GEORGE B. GIBBONS, OF NORRISTOWN, PENNSYLVANIA.

## STEAM AND WATER BOILER.

SPECIFICATION forming part of Letters Patent No. 364,100, dated May 31, 1887.

Application filed March 14, 1887. Serial No. 230,899. (No model.)

*To all whom it may concern:*

Be it known that we, JAMES C. GIBBONS and GEORGE B. GIBBONS, citizens of the United States, residing at Norristown, in the county of Montgomery and State of Pennsylvania, have invented certain new and useful Improvements in Steam and Water Boilers; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

Our invention relates to steam and water boilers, and provides means for allowing the boiler to be reversed, thereby giving to the latter a longer life.

By the peculiar construction of the furnace and of the boiler a great gain is experienced not only in the first cost but in the continued use. To this end we construct our boiler so as to allow of its being reversed—that is to say, when by prolonged use the head nearest the fire becomes worn, the boiler is turned over and the head that was farthest away is presented to the action of the fire.

In the accompanying drawings, Figure 1 is a vertical sectional view of the whole invention. Fig. 2 is a horizontal section of the boiler; Fig. 3, a front view of furnace and boiler-shell; Fig. 4, the outside view of boiler proper; Fig. 5, the base-plate on which rests the boiler. Fig. 6 is the top plate placed over the boiler.

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

A represents the fire-box with the grate-bars C. B is the base-plate. D D represent the fire-flues. *dd* represent an annular projection formed on each head of the boiler proper; F, the outer shell of boiler; G, the pipe-connections; H, the top plate; I, the casing; J, the draft-flue; K, the fire-bricks; M, the fuel-chute; O, the fire and ash doors.

The salient point in my invention is the construction of the boiler and fire-box permitting the reversing of the former. The form of the fire-box A is circular, and it is so constructed as to be adapted to securely sustain the base-plate B, which in turn receives the boiler as it is set upon it, the annular projection *dd* on

the head of the boiler preventing displacement. 50

The outer casing, I, is fitted around the boiler and on the base-plate, the top plate, M, put over both, and the pipe-connections made up.

It is of importance to note the position of the doors at the level of the grate-bars and of the floor of the ash-hole, this construction affording great convenience and speed in the removal of clinkers and ashes. 55

The heat rises up through the flues D D, and, collecting in H, travels down the flues E to the base-plate, up through the heat-space between shell and outer casing, and out through the draft-flue J. The tube M allows of the fire being fed from the top. When the boiler has been used for a certain time in this position, it will be readily seen that it can be reversed, so that the head that was next to the fire is now found to be uppermost, and the one that had not been acted upon by the fire is in a better condition than the other, and therefore will practically double the life of the boiler. 65 70

It will be noted that both heads of the boiler are meant to be similar in construction, so as to present no difficulty in reversing it, and the process of doing so is simplicity itself, only requiring that the top plate, H, be removed and the pipes be disconnected, the casing I taken off, the boiler reversed, and the casing and collector replaced. 75

Instead of the casing forming the heat-space being made of iron, it may be constructed of brick. The boiler is intended for the heating of water. When the production of steam is required, a steam-drum is added. The connections between it and the boiler, not presenting any novelty, are not shown in the drawings. 80 85

We are aware that prior to our invention a boiler capable of being removed from the outer casing has been constructed, and also a furnace having doors on a level with the floor of the ash-pit, and we do not claim these, broadly; but the construction of our boiler and the different parts of the supporting-furnace are, we believe, novel. 90

Having now described our said invention, what we claim as new, and desire to secure by Letters Patent, is— 95

1. The combination of a reversible tubular

boiler having an annular projection formed on each head, a boiler-furnace, and a supporting and removable base-plate constructed to provide a communicating channel between the  
5 lateral fire-flues and surrounding air-space, substantially as described.

2. The combination of a reversible tubular boiler having an annular projection formed on each head, a boiler-furnace, and a removable  
10 top plate constructed to provide a communicating channel between the central up-going and the lateral down-going fire-flues, substantially as described.

3. The combination, with a reversible tubular  
15 boiler having an annular projection formed on

each head, of a boiler-furnace provided with door-openings formed on a level with the grate-bars and with the ash-floor, a base-plate constructed to form a communicating channel between the lateral fire-flues and surrounding  
20 air-space, a removable top plate, and a fuel-chute, substantially as described.

In testimony whereof we affix our signatures in presence of two witnesses.

JAMES C. GIBBONS.  
GEORGE B. GIBBONS.

Witnesses:

JOSEPH WM. J. REFORD,  
CHARLES SLINGLUFF, Jr.