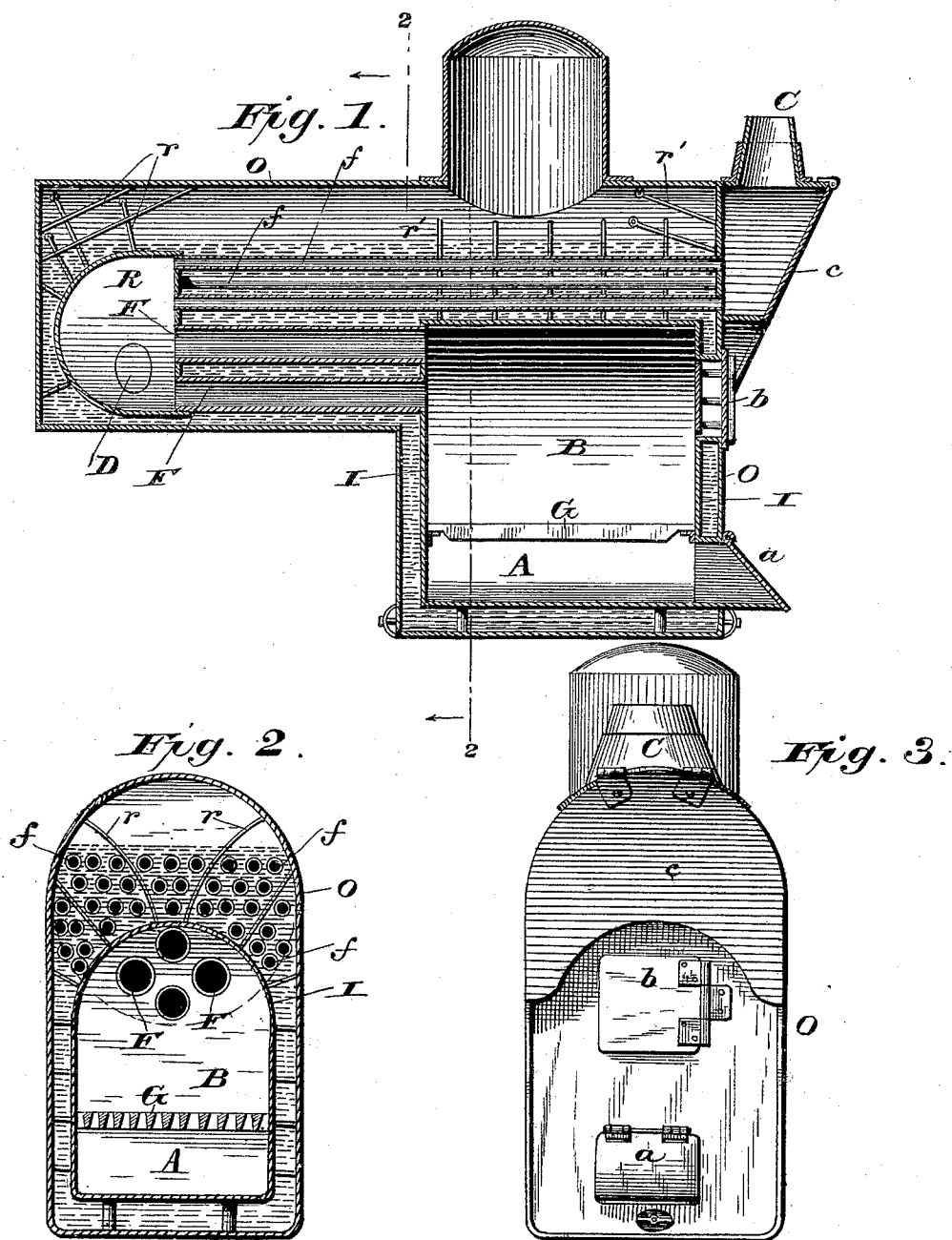


(No Model.)

J. C. STAMP.  
BOILER.

No. 448,382.

Patented Mar. 17, 1891.



WITNESSES:  
H. L. Curand  
M. J. Collamer.

INVENTOR:  
James C. Stamp.  
by C. H. Snow & Co.  
his Attorneys.

# UNITED STATES PATENT OFFICE.

JAMES C. STAMP, OF LOUISVILLE, KENTUCKY.

## BOILER.

SPECIFICATION forming part of Letters Patent No. 448,382, dated March 17, 1891.

Application filed April 24, 1890. Serial No. 349,322. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES C. STAMP, a citizen of the United States, residing at Louisville, in the county of Jefferson and State of Kentucky, have invented a new and useful Boiler, of which the following is a specification.

This invention relates to steam-boilers, and more especially to flue and tubular boilers used for heating the water therein; and the object of the invention is to improve the construction of such boilers.

With this end in view the invention consists in the specific construction of parts hereinafter set forth as new and original, and illustrated in the drawings, in which—

Figure 1 is a central longitudinal section of the boiler. Fig. 2 is a transverse section taken on the line 2 2 in Fig. 1. Fig. 3 is a front elevation of the boiler.

Referring to the said drawings, the letter O designates the outer and I the inner metallic casing of the boiler, between which the water circulates in a manner which will be readily understood.

A designates the ash-pit, G the grate, B the fire-box, and C the chimney, all as is well known in boilers of this character.

The letter F designates four flues leading rearwardly from the fire-box, and the letter *f* designates a number of smaller flues or pipes standing above the large flues F and at their back and above the fire-box, and connecting the return-chamber R at the rear end of the boiler, which through the small flues connects with the chimney C, which rises from the front end thereof. The said return-chamber is approximately semicircular in cross-section and extends across the boiler between its sides, as shown in Fig. 1. The flames and products of combustion, passing through the large flues F, enter the lower part of this chamber, are curved upwardly and forwardly by its curved rear wall, and are directed into the small flues *f*, through which they pass into the chimney. The said curved rear wall of the return-chamber R is braced in position by a number of rods *r*, connected with the walls of the boiler and with the wall of the chamber, and the water circulates

around these rods in front of, above, and below the chamber R, as shown. Other rods *r'* may brace the various parts or portions of the boiler-walls, as occasion may require.

*a* represents the ordinary door to the ash-pit, through which the ashes are removed, the hole which such door covers being surrounded by a partition which prevents the water between the outer and inner casings from passing into said hole, as will be understood.

*b* designates a similar door in front of the fire-box through which fuel may be fed into said box, this door being also surrounded by a similar partition. Brushes, scrapers, or other tools may be passed through this door for cleaning the interior of the large flues F when they become clogged with soot and scales, as is sometimes necessary.

*c* designates a door in the chimney, which stands opposite the front ends of the small flues *f*, through which door similar tools may be passed for cleaning these flues or tubes.

D D designate doors hinged on both sides of the casing on lower half of the boiler, which doors it is preferable should be double thickness—that is to say, having interior and exterior plates connected by side flanges—both doors closing holes through the outer casing and through the end wall of the chamber R, which is similar to the hole closed by the doors *a b*, for the purpose of riveting the large flues and expanding small flues or tubes, and the products of combustion which accumulate in the chamber R may be removed from time to time through these doors D D; but when they are closed the chamber is rendered air-tight.

The advantage arising from the use of a return-chamber of the character above described over others of a similar nature which are old in the art is that the progress of the flames and heat from the fire to the chimney is less interrupted by the curved construction of the rear wall of this chamber than if it were angular, and the result is that the heat in the small flues *f* is more intense than formerly. Furthermore, the water circulating completely around the boiler longitudinally thereof, because it can pass over the tops of the flues vertically along the front of

the fire-box between and below all the flues and in rear of the return-chamber, is converted into steam by all the heated surfaces which are possibly available, and the steam-  
5 producing possibilities of a boiler of this construction are therefore much greater than others wherein the water has a circulation only around the boiler transversely. It will be obvious that the heat in the large flues  
10 next the fire, where it is most intense, will be communicated to the entire length and height of the rear wall of the return-chamber, around which the water circulates, and will be directed into and through the small flues but  
15 slightly diminished in temperature.

What I claim is—

The herein-described steam-boiler, the same comprising an outer casing O, a fire-box B, spaced from said casing on all sides and at  
20 its top and bottom, large flues F, leading rearwardly from said fire-box, a return-chamber

R, of semicircular cross-section, into whose lower end said large flues deliver, said chamber having a water-space in rear of its curved wall communicating above and below with 25 the main water-space, double doors D in the sides of the casing opening into the ends of said chamber, brace-rods *r* between the curved wall of the return-chamber and the rear end of the casing, small flues *f*, leading 30 forwardly from the upper end of said chamber, and a chimney-flue C, into which said small flues deliver, all substantially as set forth.

In testimony that I claim the foregoing as 35 my own I have hereto affixed my signature in presence of two witnesses.

JAMES C. STAMP.

Witnesses

NEWTON G. ROGERS,  
ALBERT J. EICH.