

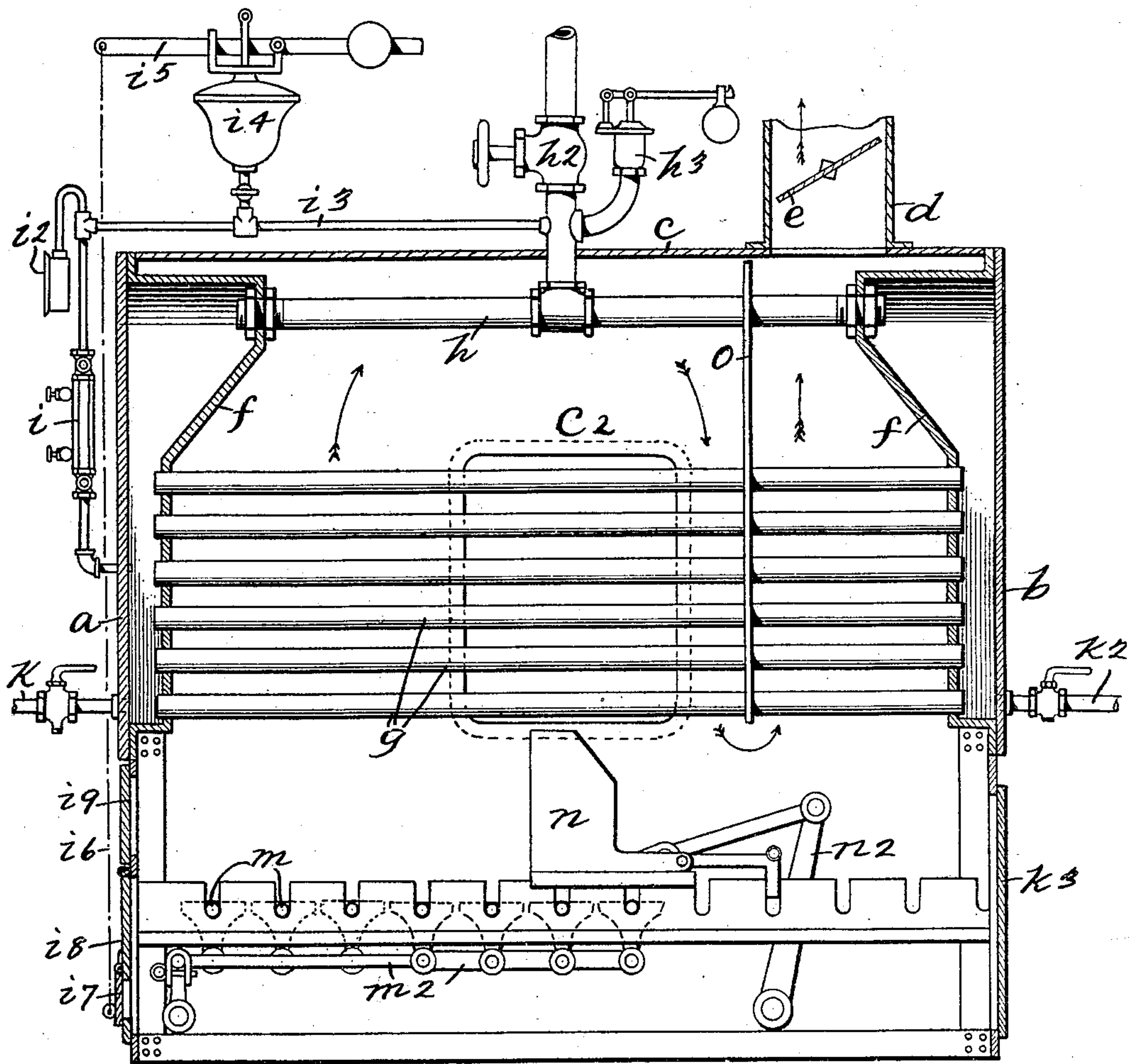
No. 810,809.

PATENTED JAN. 23, 1906.

E. PORRITT.

BOILER.

APPLICATION FILED AUG. 12, 1905.



WITNESSES

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# UNITED STATES PATENT OFFICE.

EDWIN PORRITT, OF NEW YORK, N. Y.

## BOILER.

No. 810,809.

Specification of Letters Patent.

Patented Jan. 23, 1906.

Application filed August 12, 1905. Serial No. 273,882.

*To all whom it may concern:*

Be it known that I, EDWIN PORRITT, a citizen of the United States, residing at New York, in the county of New York and State

5 of New York, have invented certain new and useful Improvements in Boilers, of which the following is a specification, such as will enable those skilled in the art to which it appertains to make and use the same.

10 The object of this invention is to provide a new and improved steam-boiler of the water-tube type by means of which the usual exterior steam-drum is dispensed with, a further object being to provide a boiler of the

15 horizontal - tube type by means of which steam is superheated on its way to the outlet-pipes or to the radiators of a house, and a still further object being to provide a boiler of this type which is simple in construction

20 and operation, comparatively inexpensive, and well adapted for the purpose for which it is intended.

My invention is fully disclosed in the following specification, of which the accompanying drawing forms a part, said drawing being a longitudinal vertical section through a boiler constructed according to my invention, and in which *a* represents the front plate, *b* the back plate, and *c* the jacket thereof, and

30 the jacket *c* is provided with the usual flue *d* and a damper *e* therein.

Secured within the jacket *c* and to the front and rear members *a* and *b* is a supplemental casing or steam-drum *f*, which is enlarged at

35 its top, as clearly shown, and in the lower narrow portion of which are the usual water-tubes *g*, permitting communication between the two steam-drums *f*, and said steam-drums are also connected at their upper enlarged

40 portion by a pipe *h*, with which is connected a valve *h*<sup>2</sup> and a safety device *h*<sup>3</sup> of any suitable construction.

As shown in the drawing, the front *a* is provided with a water-gage *i* and a steam-gage

45 *i*<sup>2</sup>, and the pipe communicating the said gages with the pipe *h*, as shown at *i*<sup>3</sup>, is provided with a diaphragm *i*<sup>4</sup>, to which is connected the usual arm *i*<sup>5</sup>, provided with a downwardly-directed chain *i*<sup>6</sup>, which is con-

50 nected at its lower end with a draft - door *i*<sup>7</sup>, mounted in an ash-pit door *i*<sup>8</sup>, secured in the front *a*. The said front is also provided with a fire-door *i*<sup>9</sup>.

At *k* I have shown a water-inlet for the

55 drums *f* and tubes *g* and at *k*<sup>2</sup> an outlet there-

for, and beneath the outlet *k*<sup>2</sup> in the back *b* is a door *k*<sup>3</sup>, and the sides of the jacket *c* are provided with doors *c*<sup>2</sup>, only one of which is shown.

Beneath the water-tubes *g* are mounted 60 the grate-bars *m*, of any suitable construction, and arranged thereover is a bridge or fire-wall *n*, which is adapted to be moved backwardly and forwardly when desired by means of toggles *n*<sup>2</sup>, and the grate-bars *m* are adapt-

65 ed to be agitated by means of links or bars *m*<sup>2</sup>; but the construction of these elements forms no part of this application, but is made the subject of a separate application, and any suitable grate-bars or bridge may be

70 employed in my boiler.

Slidably mounted on the tubes *g* and steam-pipe *h* is a partition-plate *o*, which is adapted to be moved either from the door *k*<sup>3</sup> or the door *c*<sup>2</sup> and which is designed to reduce the

7 heating area of the tubes *g*, and this is also made the subject of the aforesaid separate application.

In the operation of my invention the water is admitted through the inlet *k* until it has

80 reached the desired height in the water-gage *i*, and a fire is started in the usual manner on the grate-bars *m*, and the heat therefrom passes between and around the tubes *g* and to the top of the jacket *c*, and thence down-

85 wardly beneath the partition-plate *o* and upwardly through the flue *d*, and in this manner the tubes *g* are subjected to direct heat at one end thereof and to indirect heat at an-

90 other point thereof in front of the partition *o* and again subjected to the indirect heat at a point to the rear of the partition *o*, and at the same time the steam generated in the tubes *g* and drums *f* is superheated in the steam-pipe

95 *h* both in front and to the rear of the partition *o* and economy of fuel thereby results, and the heating area of the tubes and drums is thereby increased and steam is more quickly generated than in boilers as heretofore constructed.

My boiler may be constructed entirely of metal plates or may be composed of masonry and various modifications in the details of the construction shown may be made, such as the shape of the drums *f* or the relative

105 sizes thereof, and various other modifications of and changes in the construction herein shown and described may be made without departing from the spirit of my invention or sacrificing its advantages.

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— Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A steam-generator, comprising a front  
5 and rear member, and a jacket connecting the same, a casing at each end of said generator, said casings being of greater dimension at their upper ends than at their lower ends, said enlarged portions forming steam-drums,  
10 an inlet for one of said casings, an outlet for the other of said casings, water-tubes connecting said casings with each other, a pipe connecting said drums within said jacket and an outlet for said pipe, substantially as shown  
15 and described.

2. A steam-generator, comprising the usual casing, a supplemental casing in each end of said first-named casing, said supplemental

casings being enlarged at their upper ends, said enlarged portion forming steam-drums, 20 water-tubes connecting the lower portions of said supplemental casings, a steam-pipe connecting the enlarged portions thereof, an inlet for one of said casings, an outlet for the other of said casings and a steam-outlet for 25 said steam-pipe, substantially as shown and described.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of the subscribing witnesses, this 30 11th day of August, 1905.

EDWIN PORRITT.

Witnesses:

C. E. MULREANY,  
F. A. STEWART.