

No. 868,485.

PATENTED OCT. 15, 1907.

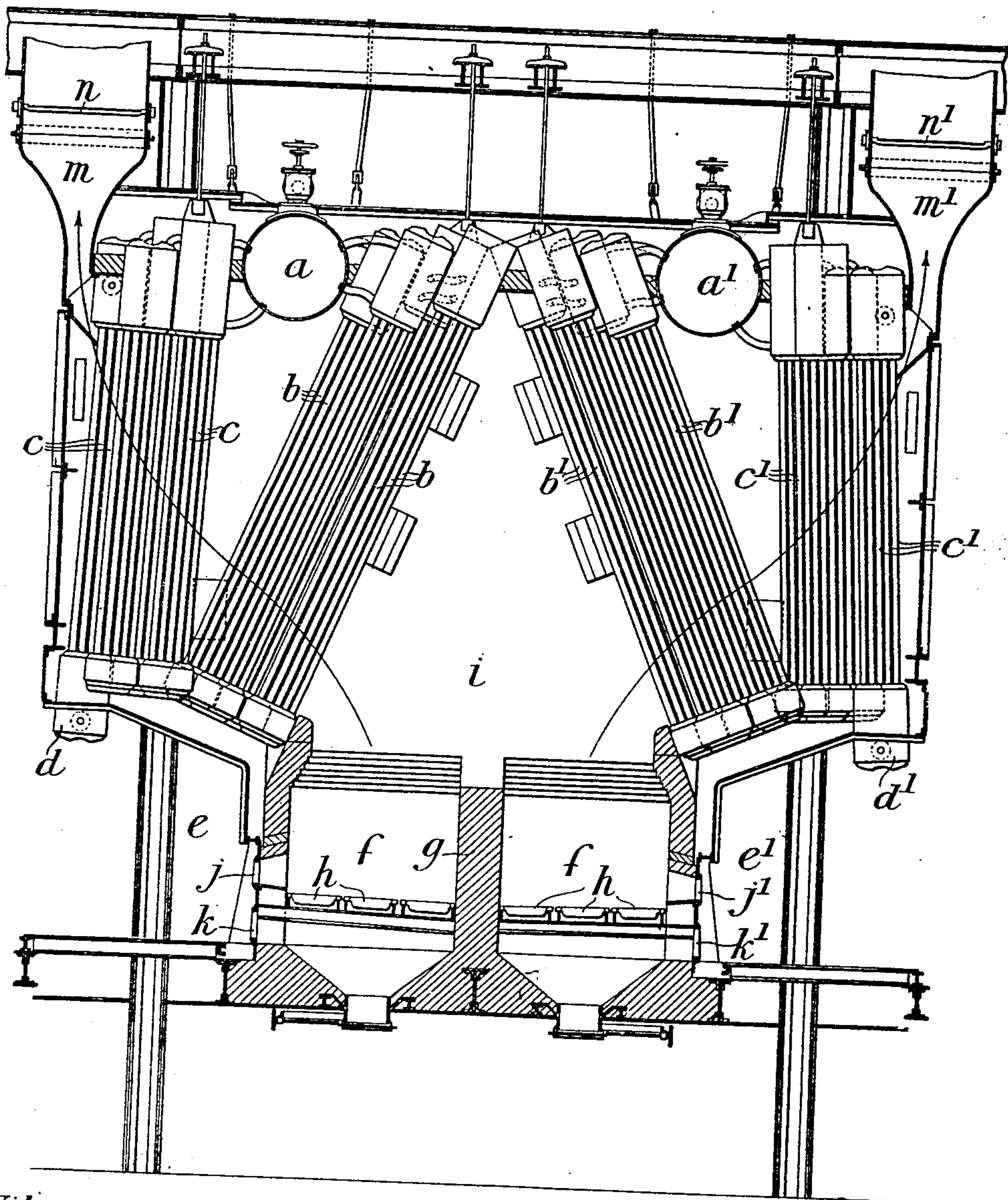
D. ROBERTS.

WATER TUBE BOILER AND STEAM GENERATOR.

APPLICATION FILED JULY 14, 1904.

2 SHEETS—SHEET 1.

Fig. 1.



Witnesses.

J. K. Moore
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Inventor.

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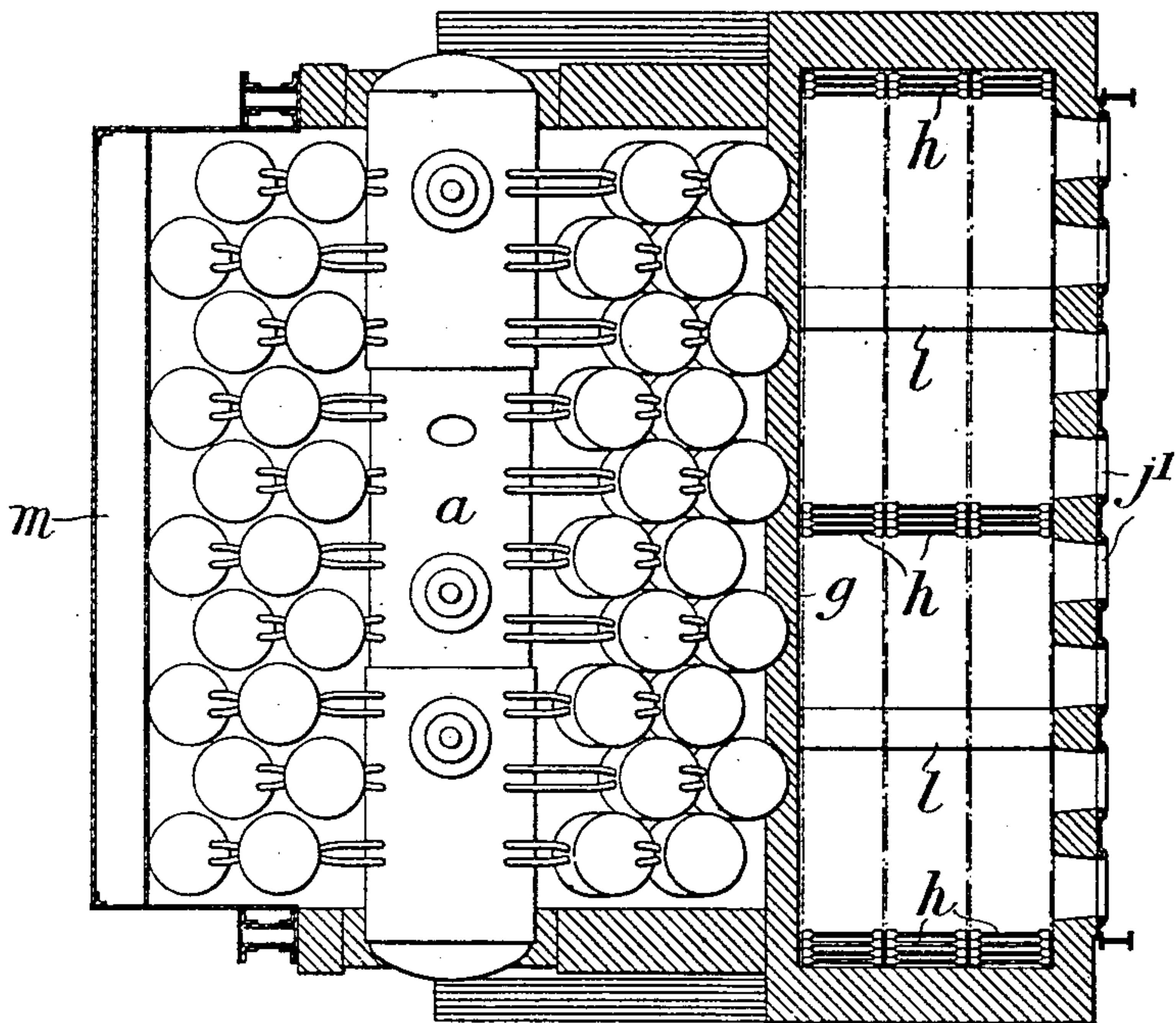
D. ROBERTS.

WATER TUBE-BOILER AND STEAM GENERATOR.

APPLICATION FILED JULY 14, 1904.

2 SHEETS—SHEET 2.

Fig. 2.



Witnesses

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Inventor.

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UNITED STATES PATENT OFFICE.

DAVID ROBERTS, OF GRANTHAM, ENGLAND.

WATER-TUBE BOILER AND STEAM-GENERATOR.

No. 868,485.

Specification of Letters Patent.

Patented Oct. 15, 1907.

Application filed July 14, 1904. Serial No. 216,563.

To all whom it may concern:

Be it known that I, DAVID ROBERTS, a subject of the King of Great Britain, residing at Spittlegate Iron Works, Grantham, in the county of Lincoln, England, have invented new and useful Improvements in Water-Tube Boilers and Steam-Generators, of which the following is a specification.

My invention relates to improvements in water-tube boilers of the kind described in the specifications of British patents 5003/1902, and 26687/1902 and comprises a novel arrangement of two such boilers in combination with one common furnace, the object being to effect greater economy in the consumption of fuel and the better regulation of combustion to meet irregular demands for steam such as arise in electricity generating stations and in various manufactures.

According to my invention the two boilers are placed with the inclined nests of tubes over the common furnace towards one another and at such a height as will give headroom for stoking the furnace from opposite sides. The fire bars may extend the full width between the fire doors on opposite sides, or, if preferred, a division or flame wall may be placed at any suitable line and carried a short distance up into the combustion chamber. The ashpit may be divided into suitable sections and the combustion in any chamber regulated by opening and closing the ashpit doors of its section. Each boiler has its separate damper to regulate the flow of the hot gases among the tubes; or the hot gases may be made to flow among the tubes of one of the boilers only.

In the accompanying drawings:—Figure 1 is a sectional elevation illustrating a boiler having the improvements applied thereto; and Fig. 2 is a sectional plan view thereof.

a is the steam and water drum; *b, b*, the angled nests of tubes and *c, c*, the vertical or approximately vertical nests of tubes all joined together to form the left hand boiler; *a'* is the steam and water drum; *b', b'*, the angled nests of tubes and *c', c'*, the vertical or approximately vertical nests of tubes all joined together to form the right hand boiler, both as described in the specification of the aforesaid British Patent No. 5003 of 1902.

d, d' are bottom headers on the back rows of the nests of tubes, which headers are longer than the others and into which the sediment from the feed is deposited, the said sediment being discharged in the usual manner; *e, e'* are the stoke-holes arranged under the nests of tubes *b, b, c, c* and *b', b', c', c'*, which are located at a sufficient height to give headroom for stoking the boilers.

f is the furnace common to both boilers; *g* is a division or flame wall in the furnace (which may, if de-

sired, be dispensed with and the fire bars *h* be taken right across) *i* is the combustion-chamber; *j, j'* are the furnace doors; *k, k'* are the ashpit doors and *l, l* are divisions in the ashpit constructed of any suitable material and made air tight or approximately air tight between each section; *m, m'* are chimneys and *n, n'* the dampers for regulating the flow of the gases among the tubes of each boiler.

If desired the two boilers may be connected together by pipes or tubes either in the steam and water spaces of the steam and water drum or in the steam and water spaces of the headers of any of the nests of tubes and thus form one boiler.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

1. In a steam generator, the combination with a plurality of units arranged on opposite sides of a center, of a common furnace located between said units, having a central fire wall dividing it into two sections and furnace doors on two opposite sides parallel to said fire wall for feeding fuel to said sections of the furnace independently, said furnace being provided with two independent smoke outlets, one for each of said sections arranged adjacent to opposite sides of the generator, and a damper in each of said smoke outlets, substantially as described.

2. In a steam generator, the combination with a plurality of units arranged on opposite sides of a center, of a common furnace located between said units, having a central fire wall dividing it into two sections and furnace doors on two opposite sides parallel to said fire wall for feeding fuel to said sections of the furnace independently, said furnace being provided with two independent smoke outlets, one for each of said sections, a damper for controlling each of said smoke outlets, an ashpit beneath each of said furnace sections, partitions in each of said ashpits dividing the same into separate compartments and independent means for admitting air to each of said compartments, substantially as described.

3. In a steam generator, the combination with a plurality of units arranged on opposite sides of a center, of a common furnace located between said units, having a central fire wall dividing it into two sections and furnace doors on two opposite sides parallel to said fire wall for feeding fuel to said sections of the furnace independently, said furnace being provided with two independent smoke outlets, one for each of said sections, a damper for controlling each of said smoke outlets, an ashpit beneath each of said furnace sections, partitions in said ashpits perpendicularly disposed to said fire wall and dividing said ashpits into separate compartments and independent means for admitting air to each of said compartments, substantially as described.

4. In a steam generator, the combination with a plurality of units arranged on opposite sides of a center, of a common furnace located between said units provided with a central fire wall dividing it into two sections, a separate ashpit under each of said sections of the furnace, partitions in said ashpit dividing the same into separate com-

partments and independent means for admitting air to each of said compartments, substantially as described.

5 In a steam generator, the combination with a plurality of units arranged on opposite sides of a center, of a common furnace located between said units provided with a central fire wall dividing it into two sections, furnace doors arranged on two opposite sides of the furnace parallel with said fire wall for feeding fuel to said sections of the furnace independently, a separate ashpit under

each section of the furnace, partitions in said ashpits disposed perpendicularly to said fire wall and dividing said ashpits into separate compartments and independent means for admitting air to each of said compartments, substantially as described. 10

DAVID ROBERTS.

Witnesses:

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H. D. JAMESON.