

J. G. A. DONNELEY.
STEAM GENERATOR.
APPLICATION FILED JULY 6, 1907.

929,294.

Patented July 27, 1909.

2 SHEETS—SHEET 1.

Fig. 1

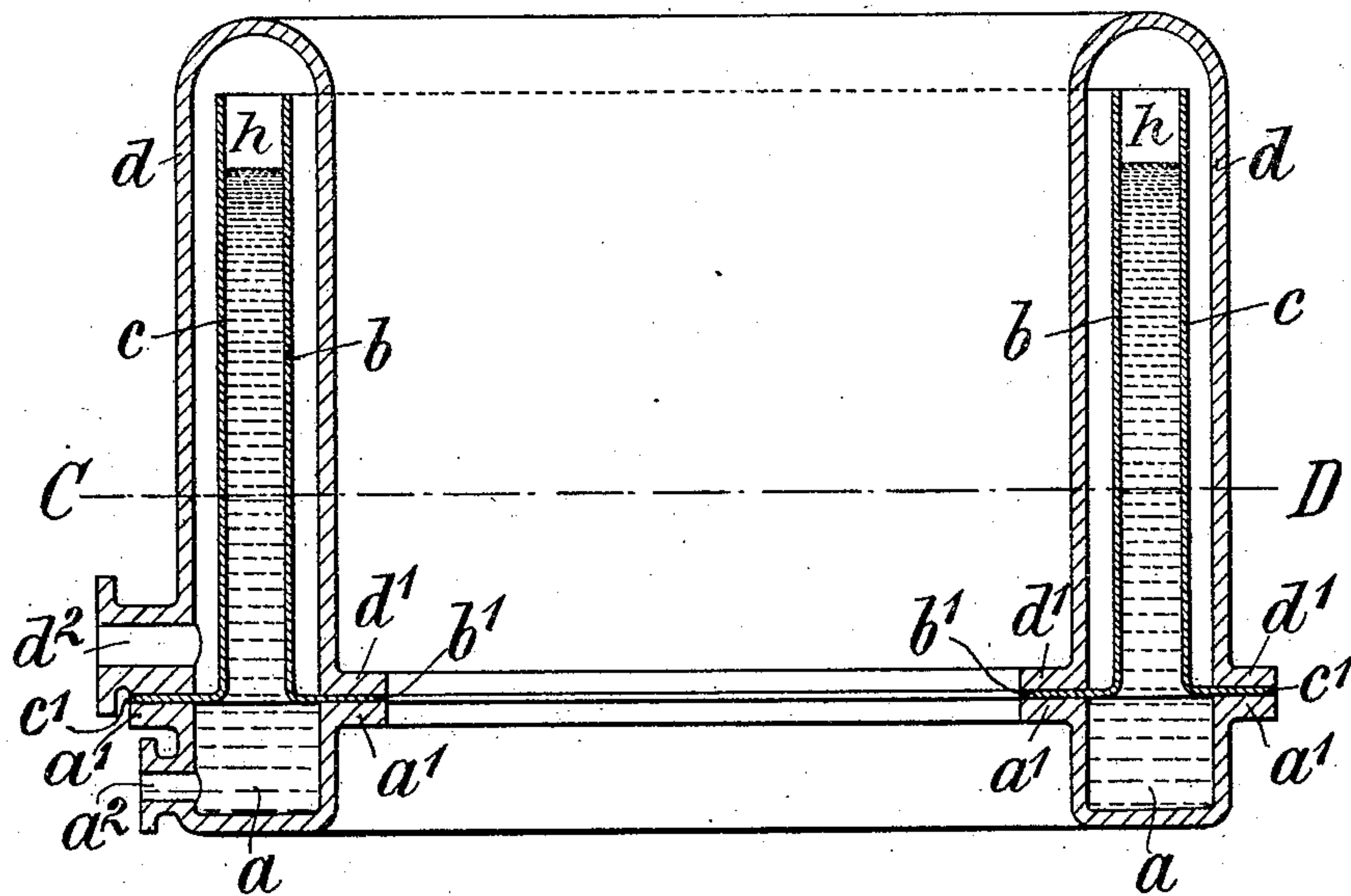
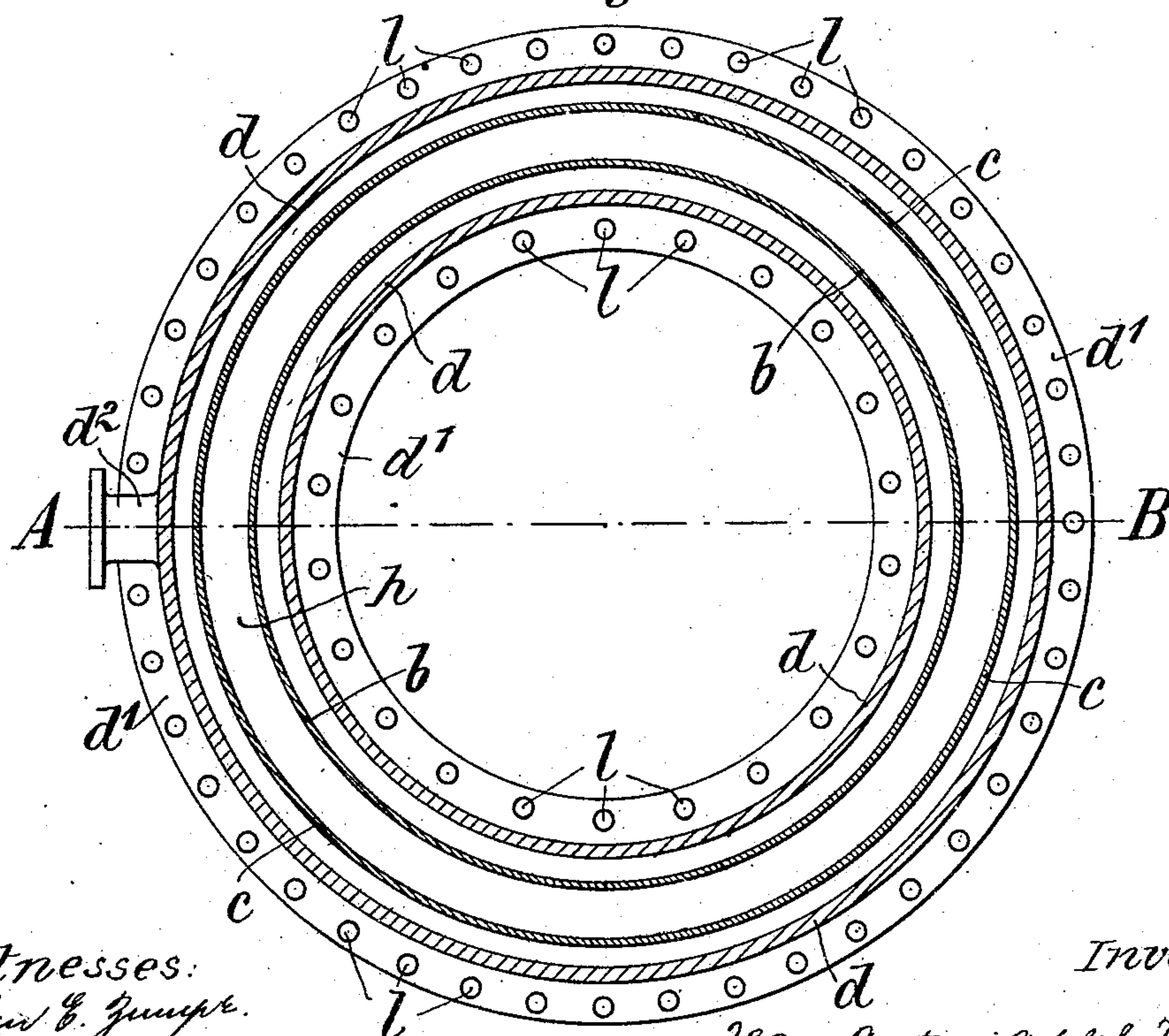


Fig. 2



Witnesses:
Arthur E. Zumpfer.
August Miner

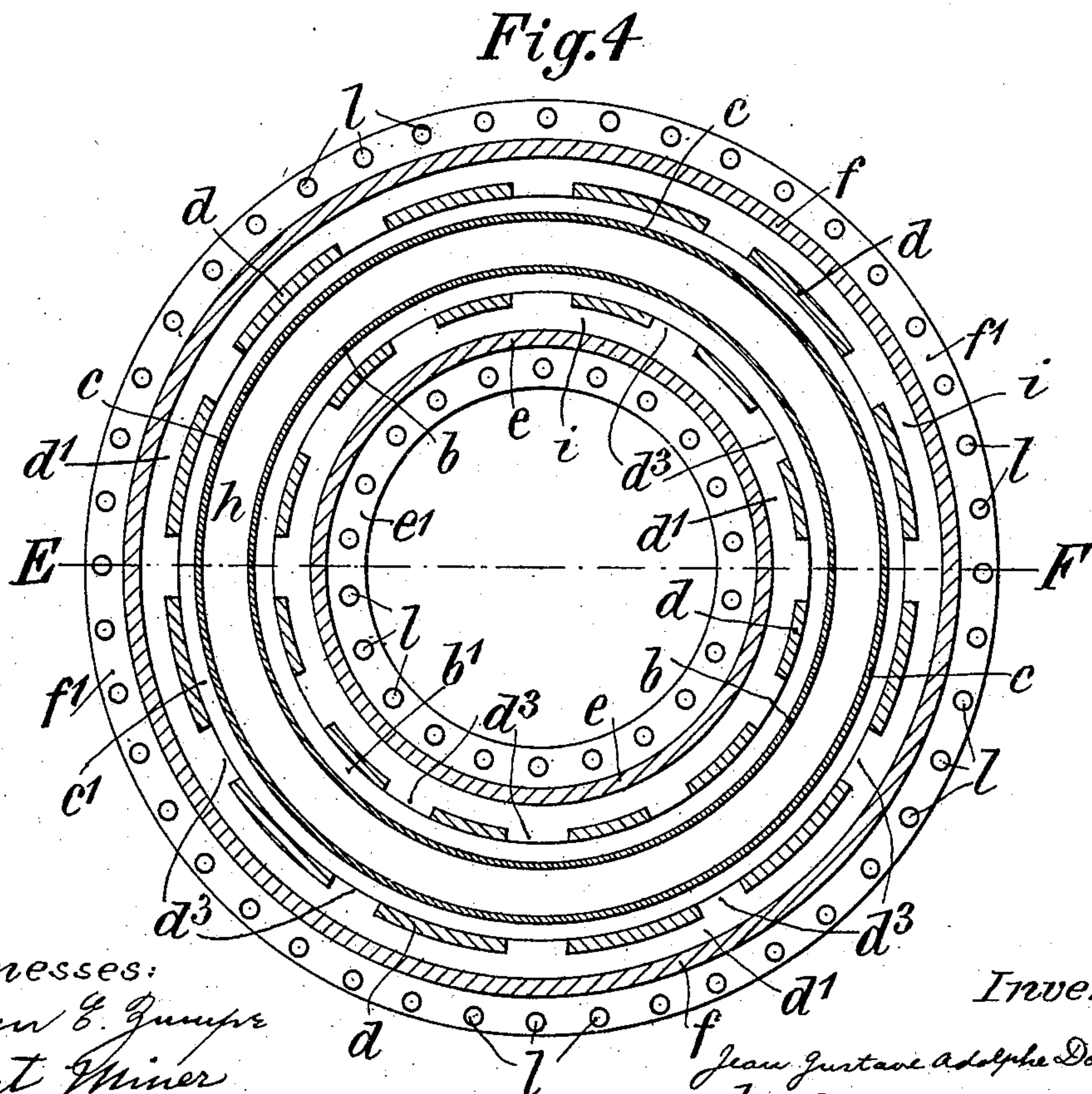
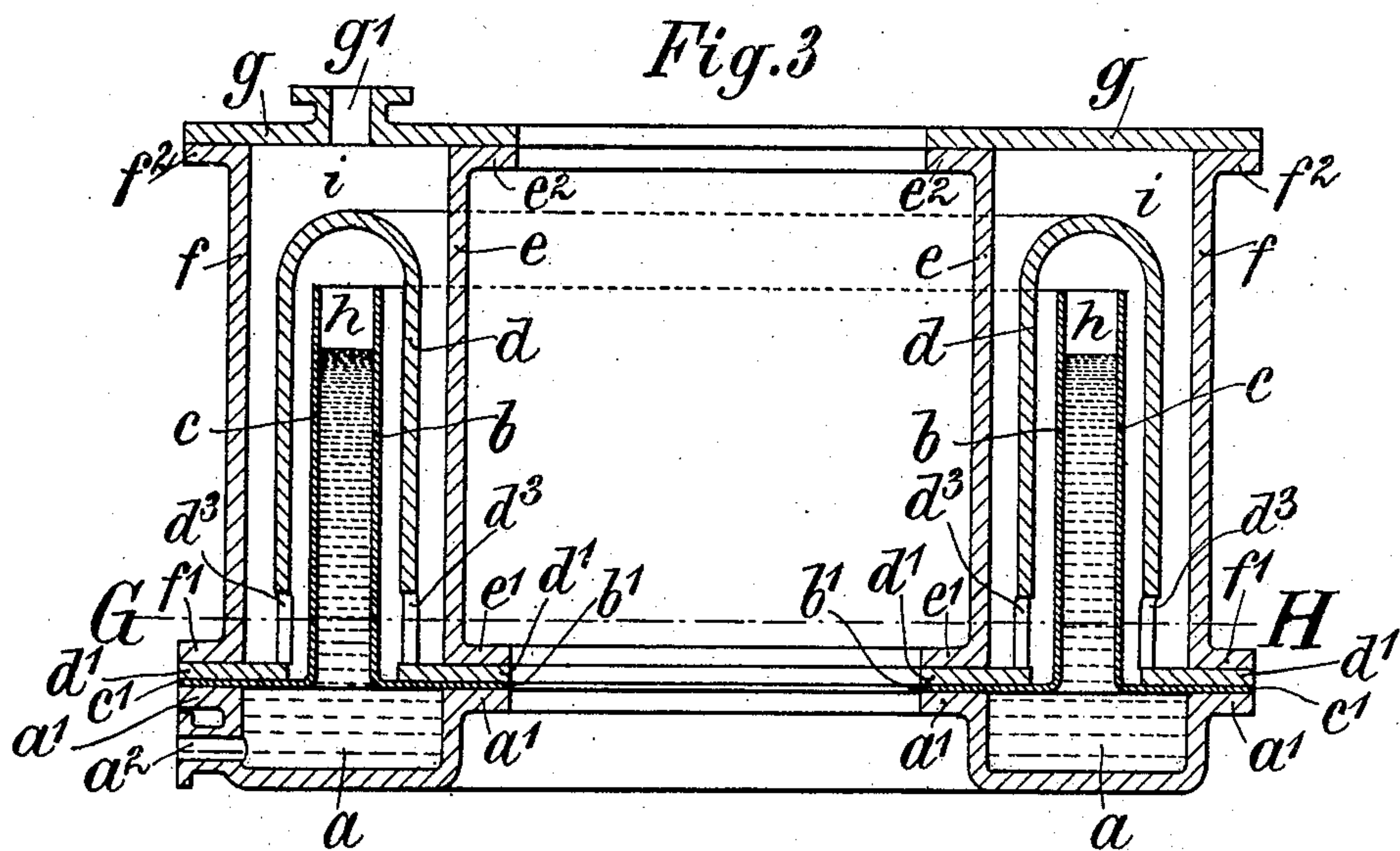
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2 SHEETS—SHEET 2.



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Arthur E. Gump
August Miner

Inventor:

Jean Gustave Adolphe Donneley
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UNITED STATES PATENT OFFICE.

JEAN GUSTAVE ADOLPHE DONNELEY, OF ALTONA-OTTENSEN, GERMANY.

STEAM-GENERATOR.

No. 929,294.

Specification of Letters Patent.

Patented July 27, 1909.

Application filed July 6, 1907. Serial No. 382,533.

To all whom it may concern:

Be it known that I, JEAN GUSTAVE ADOLPHE DONNELEY, a citizen of Germany, residing at Altona-Ottensen, Germany, have invented
5 new and useful Improvements in Steam-Generators, of which the following is a specification.

This invention relates to a steam generator of simple construction and adapted to
10 produce superheated steam in a rapid and efficient manner.

In the accompanying drawings: Figure 1 is a vertical section of my improved steam generator on line A—B, Fig. 2; Fig. 2 a horizontal section on line C—D, Fig. 1; Fig. 3 a
15 vertical section of a modification on line E—F, Fig. 4, and Fig. 4 a horizontal section on line G—H, Fig. 3.

An annular water chamber or U-shaped
20 trough *a*, is provided with a pair of upper flanges *a'*. Above chamber *a*, are mounted a pair of concentric tubes *b*, and *c*, having lower flanges *b'*, *c'*, respectively. Tubes *b*, *c*, are inclosed by an annular casing *d*, of inverted U-shaped cross section, casing *d*, being
25 provided with lower flanges *d'*. Flanges *a'*, *b'*, *d'*, and *a'*, *c'*, *d'*, are perforated as at *l*, for the reception of connecting screw bolts, (not shown). Chamber *a*, is provided with a water inlet *a²*, while casing *d*, has a steam outlet *d²*.

Chamber *a*, and the annular space *h*, between tubes *b*, and *c*, are filled with water to a suitable level, parts *a*, and *d*, being exposed
35 to the direct heat of a fire chamber, (not shown), in such a manner that they are heated to a temperature of 500 to 600° C. The steam thus generated in chambers *a*, *h*, will descend in steam chamber *d*, to be discharged
40 through exhaust *d²*. During this downward

flow the steam will become superheated by the walls of casing *d*, while the latter are in turn cooled by the steam, so that they are not liable to be injured by excessive heat.

In Figs. 3 and 4, the water chamber *h*, is
45 surrounded by the inverted U-shaped annular casing *d*, provided with a series of lower openings *d³*, that establish communication with a second outer steam chamber *i*, formed between a pair of concentric walls *e*, and *f*,
50 having bottom flanges *e'*, *f'*, and top flanges *e²*, *f²*, respectively. Steam chamber *i*, is closed at its top by a cover *g*, having steam outlet *g'*.

The steam generated in chamber *h*, is thus
55 caused to first descend in casing *d*, and to then ascend in chamber *i*, where it is superheated, to be finally discharged through exhaust *g'*.

I claim:

1. A boiler for producing superheated
60 steam, comprising an annular trough, a pair of spaced concentric tubes extending upwardly therefrom to form an intervening water chamber, and an annular steam chamber surrounding said tubes, substantially as
65 specified.

2. A boiler for producing superheated
70 steam, comprising an annular flanged trough, a pair of flanged concentric tubes that form an intervening water chamber and engage the trough flanges, and an annular steam chamber surrounding the tubes, substantially as specified.

Signed by me at Hamburg, Germany this
75 22 day of June 1907.

JEAN GUSTAVE ADOLPHE DONNELEY.

Witnesses:

AUGUST WENK,

ERNEST H. L. MUMMENHOFF.