

(No Model.)

2 Sheets—Sheet 1.

N. W. PRATT.
STEAM GENERATOR.

No. 318,501.

Patented May 26, 1885.

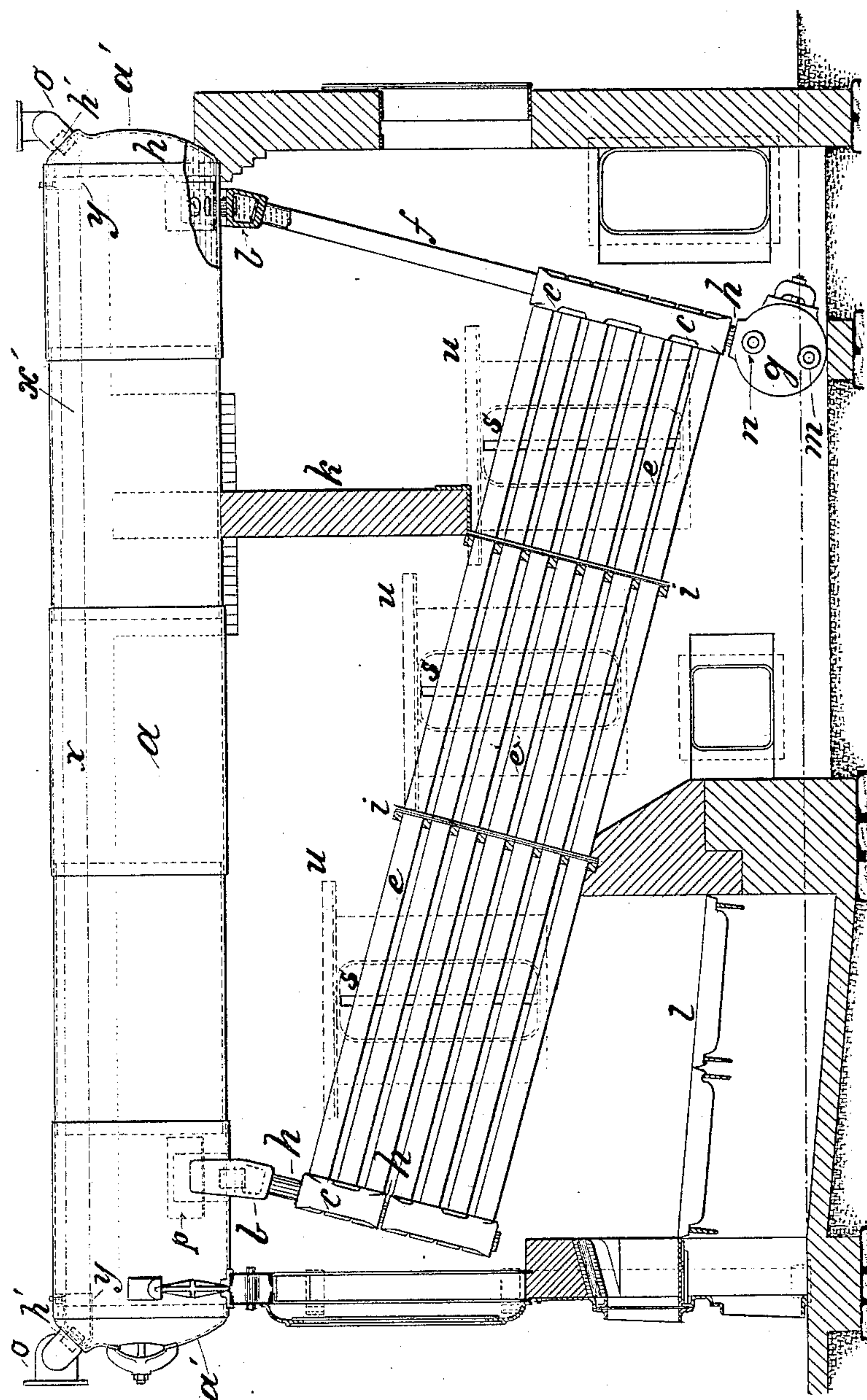


FIG. 1

WITNESSES:

John S. Caldwell,
Edmund Kent Jr.

INVENTOR

Nathaniel W. Pratt

BY

Charles W. Jones

ATTORNEY

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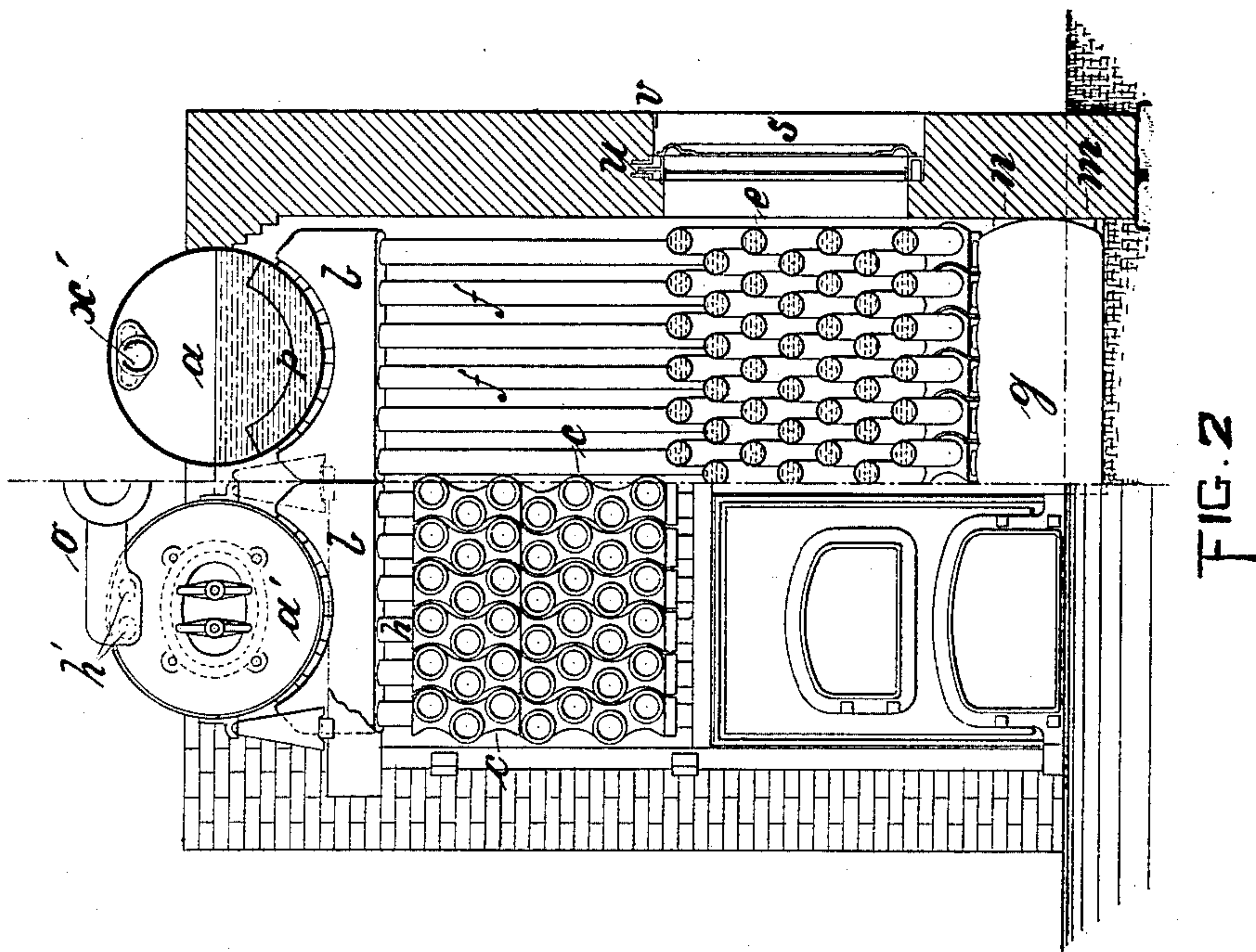


FIG. 2

WITNESSES:

John S. Caldwell
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UNITED STATES PATENT OFFICE.

NATHANIEL W. PRATT, OF BROOKLYN, NEW YORK.

STEAM-GENERATOR.

SPECIFICATION forming part of Letters Patent No. 318,501, dated May 26, 1885.

Application filed June 20, 1884. (No model.)

To all whom it may concern:

Be it known that I, NATHANIEL W. PRATT, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Steam-Generators, of which the following is a specification, reference being had to the accompanying drawings, forming a part of the same, in which—
10 Figure 1 is a side elevation, partly in section, and Fig. 2 an end elevation, partly in section, of a steam-generator embodying my improvements.

The improvements referred to in this application relate to sectional steam-generators, and are embodied, for illustration, in a type known as the "Babcock and Wilcox Water-Tube Boilers," for which several patents have already been granted, including various im-
15 20 provements thereon.

This invention consists in certain details of construction, which I will describe.

In the drawings, *a* is the steam and water drum; *b*, the manifolds or cross-headers connected with the drum *a* and headers *c* by means of the expanded nipples *h* and circulating-pipes *f*.

e are the generating-tubes, connected at each end in series with the headers *c*, and constitute the main heating and generating surface. The rear headers are each formed in a single piece, while the front headers are made in two parts joined together by the expanded nipples *h*, as shown in Fig. 1, this variation being
30 35 made to allow for the unequal expansion and contraction that take place, due to the unequal heating of the connected tubes.

g is a mud-drum, also connected with the rear headers beneath their lowest point. The object of this mud-drum *g* is to accumulate the deposits of the generator, and is therefore located at the lowest point of circulation, and also the farthest removed from the fire. This mud-drum is connected with all the sections
40 45 by means of expanded nipples *h*, and provided with a boss, *m*, to which a blow-off pipe is connected for removing the accumulated deposits, and also with a boss, *n*, to which a pipe-connection may be made for returning the condensed water from a steam-heating system. The boss *m* is placed near the bottom of the mud-drum, in order to carry off all the deposit, and the boss *n* placed above
50 or near the top of the same, so that the inflow-

ing current of water will not disturb the deposit collected at the bottom.

l represents the furnace, and *i i* the flame-bridges, which, together with the bridge-wall *k*, determine the course of the gases across the tubes in the passage from the furnace to the
60 stack.

p is a deflecting plate or diaphragm arranged over the openings to the drum leading from the cross-headers *b*, as shown in Fig. 2, and in dotted lines, Fig. 1. The purpose of
65 this plate is to prevent the rapidly-circulating water and steam that rise from the generating-surfaces from being projected upward into the steam-space; and it acts to deflect the current in a horizontal direction, which allows
70 the steam to slowly separate in passing to its outlet at the rear end of the drum.

Within the drum *a* a dry pipe, *x*, is placed, communicating therewith at the point *x*, or wherever the driest steam is delivered. The
75 ends of this dry pipe are supported in castings *y y*.

It will be observed that the rear or continuous header is held firmly in place by its connection with the mud-drum *g* and circulating-pipes *f*, while the front or sectional header is connected at its top only, and the object in constructing it in sections is to allow a greater rate of expansion, owing to its exposed situation in relation to the fire.
80 85

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

1. In a water-tube generator having a series of generating-tubes, said tubes being secured at one end to a continuous header and at their opposite end to a header composed of communicating sections, whereby said header composed of communicating sections provides for its greater rate of expansion, as described.
90 95

2. In a water-tube generator having a steam and water drum communicating through openings with a series of circulating or heating tubes, substantially as described, a deflecting plate or diaphragm arranged within said drum
100 near and directly over or in line with said openings, whereby the course of the current of steam and water entering the drum is changed, for the purpose specified.

NAT. W. PRATT.

Witnesses:

CHAS. W. FORBES,
JOHN S. CALDWELL.