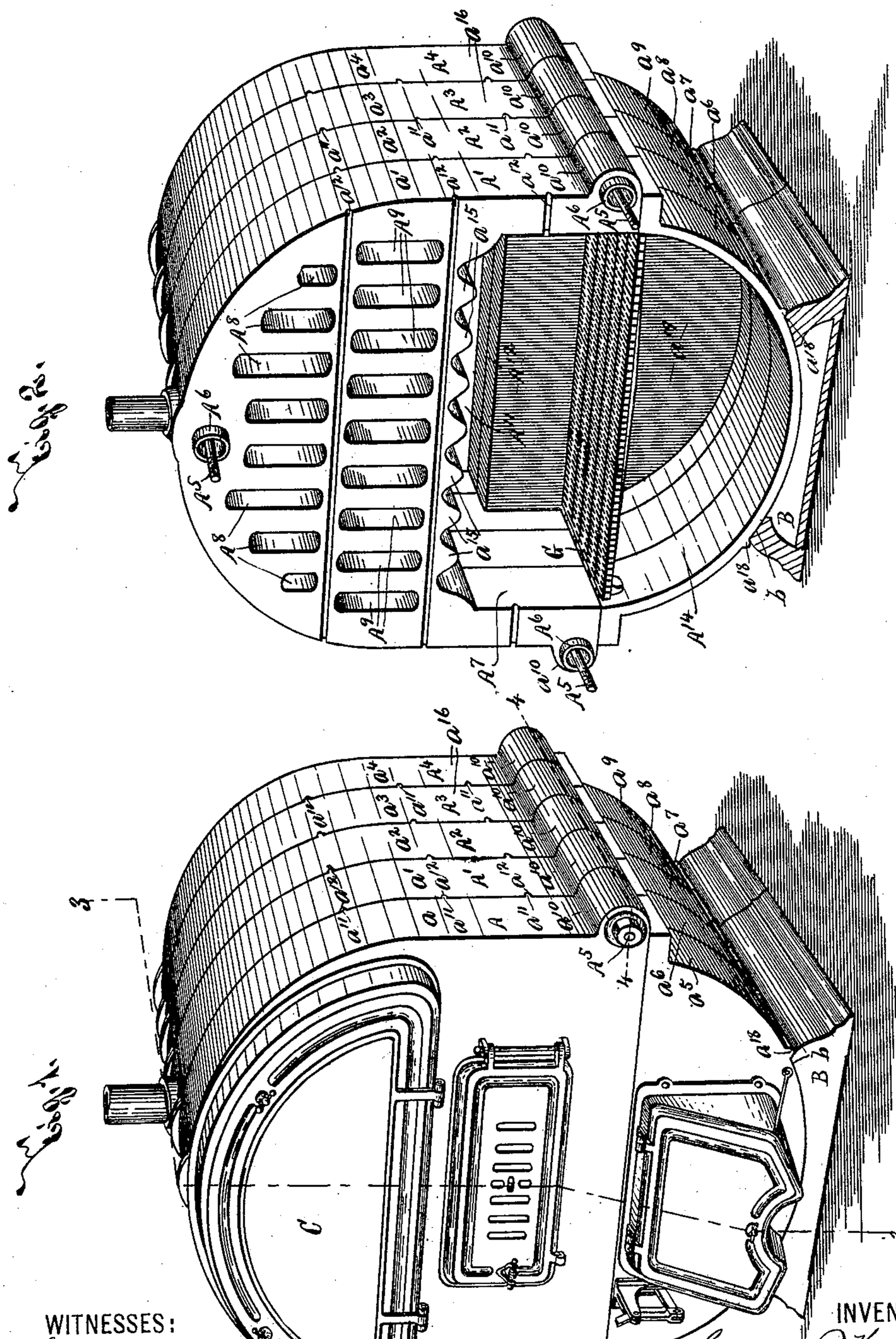
(No Model.)

3 Sheets—Sheet 1.

E. P. WAGGONER.

GENERATOR.

No. 587,289. Patented July 27, 1897.



WITNESSES:

H. C. Chase.

F. F. Brewer.

INVENTOR

Edward P. Waggoner.

BY

Key & Parsons

ATTORNEYS.

(No Model.)

3 Sheets—Sheet 2.

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Fig. 3.

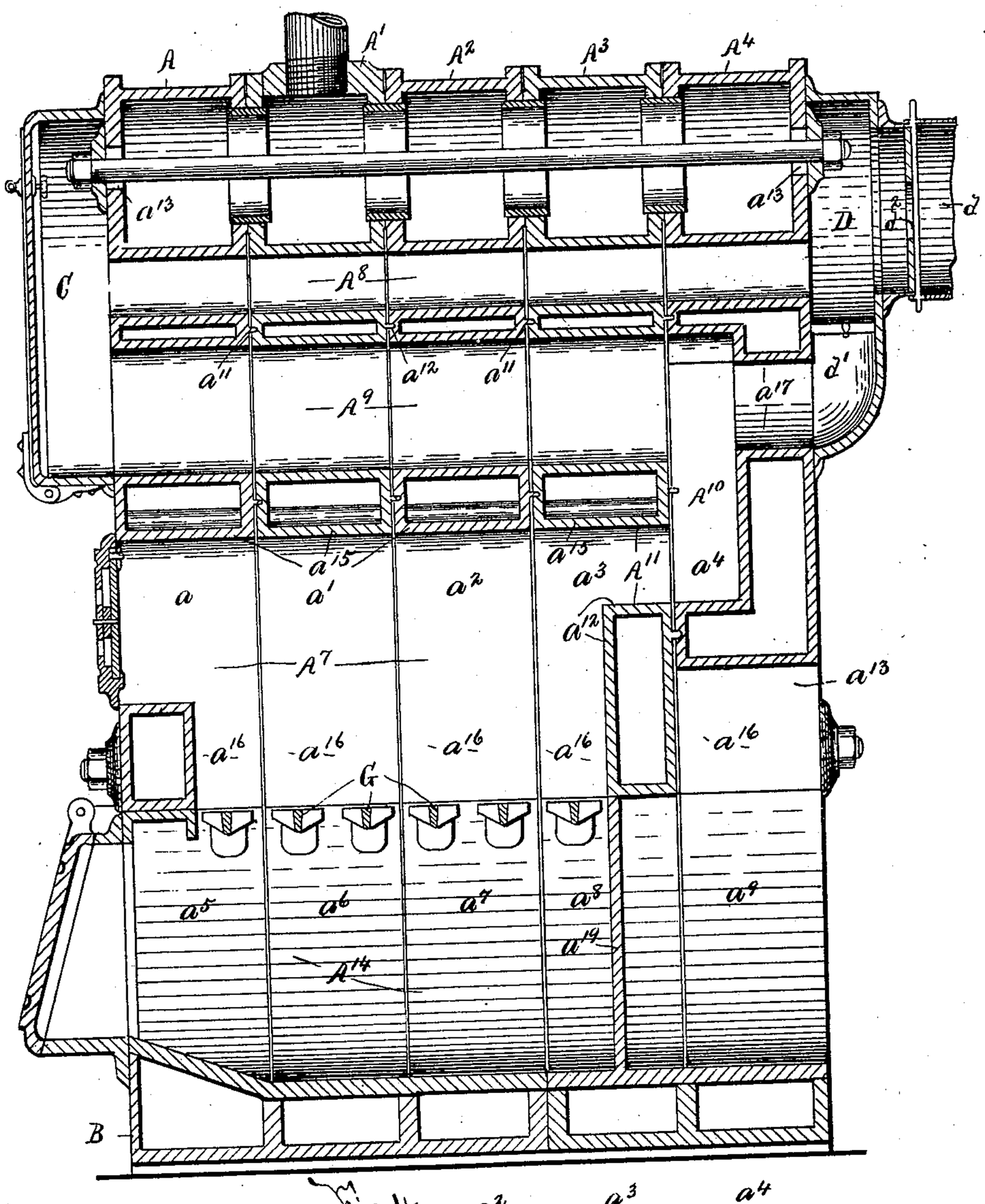

Fig. 4.

WITNESSES:
C. C. Chase,
F. F. Brewer.

INVENTOR
Edward P. Waggoner
Key & Parsons
ATTORNEYS.

(No Model.) 3 Sheets—Sheet 3.

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Fig. 5.

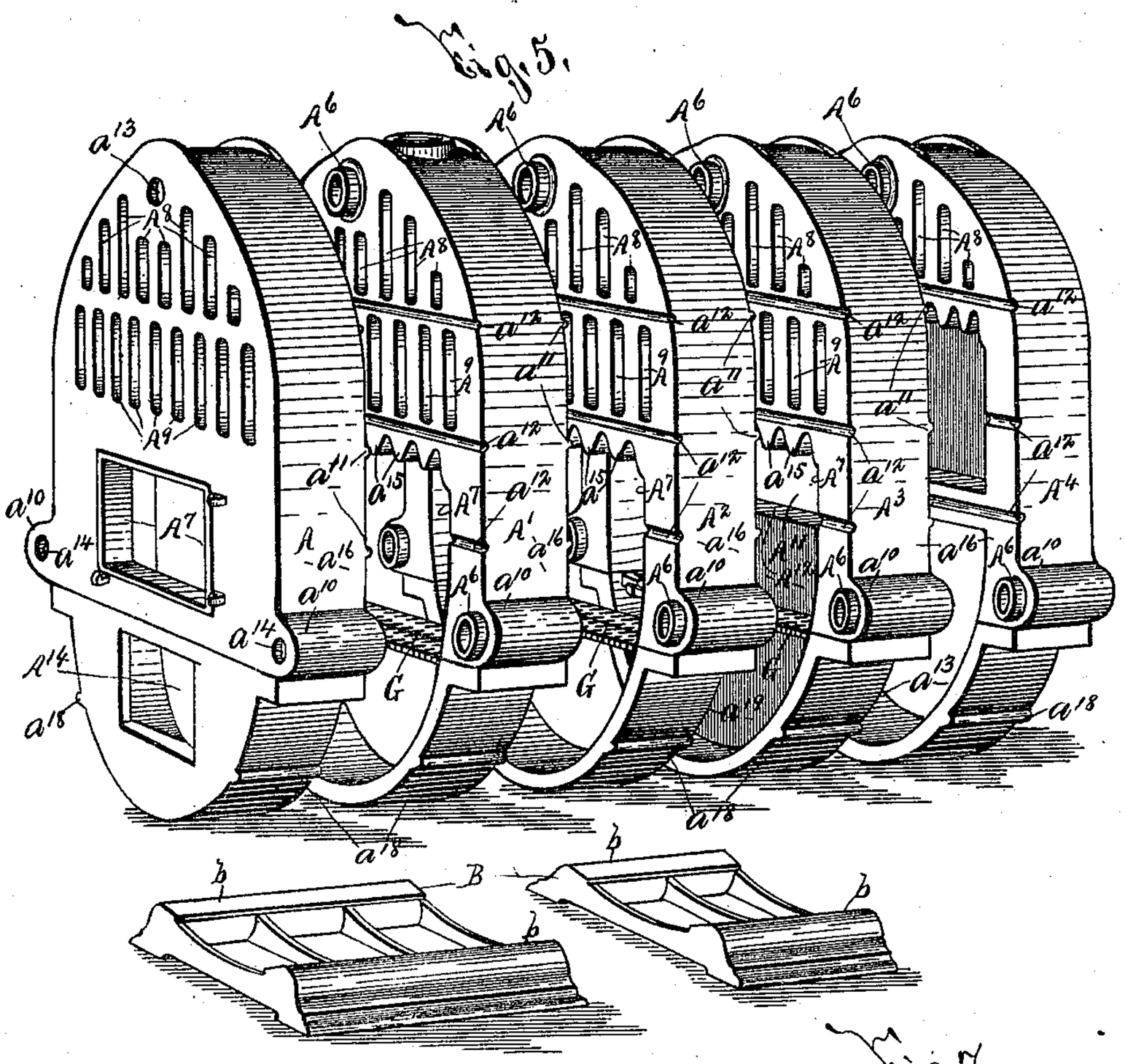


Fig. 7.

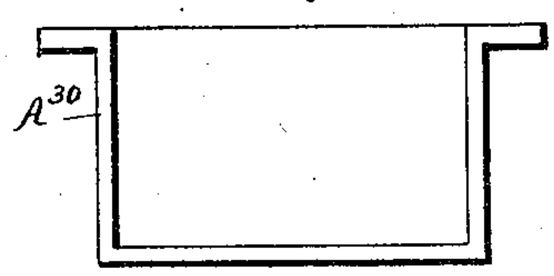
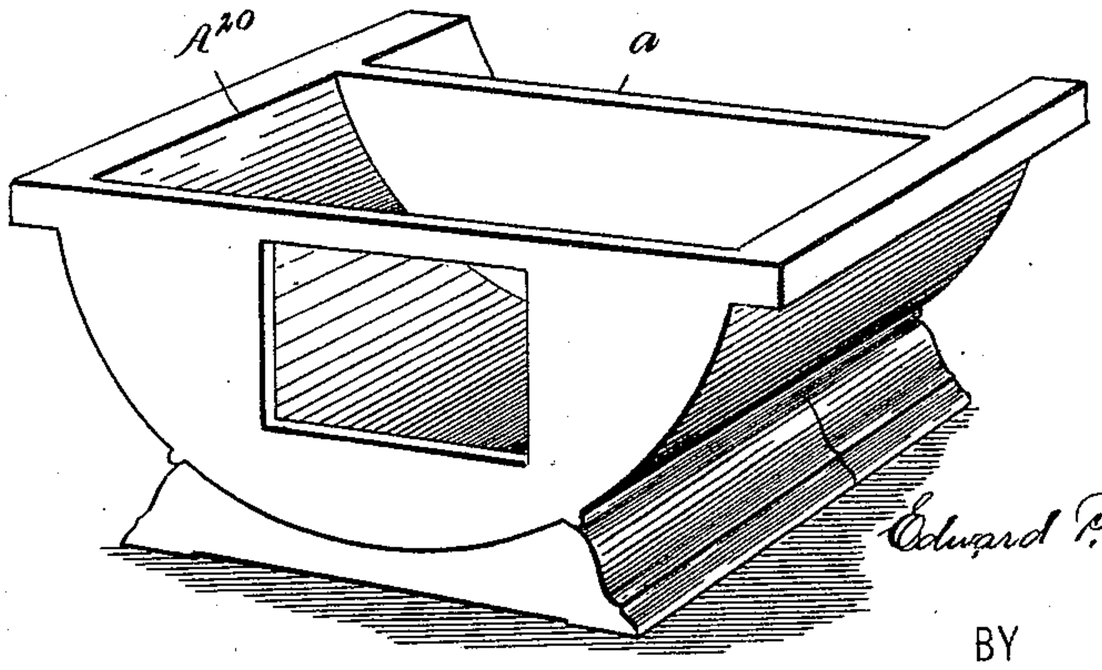


Fig. 6.



WITNESSES:
H. E. Chase,
F. F. Brewer.

INVENTOR
Edward P. Waggoner.

BY
Key & Parsons.
ATTORNEYS.

UNITED STATES PATENT OFFICE.

EDWARD P. WAGGONER, OF SYRACUSE, NEW YORK, ASSIGNOR TO THE A. A. GRIFFING IRON COMPANY, OF JERSEY CITY, NEW JERSEY.

GENERATOR.

SPECIFICATION forming part of Letters Patent No. 587,289, dated July 27, 1897.

Application filed May 28, 1896. Serial No. 593,473. (No model.)

To all whom it may concern:

Be it known that I, EDWARD P. WAGGONER, of Syracuse, in the county of Onondaga, in the State of New York, have invented new and useful Improvements in Generators, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

My invention relates to improvements in generators of the class set forth in my pending application, Serial No. 592,217, particularly applicable for house-heating purposes, and has for its object the production of a device which is readily handled and assembled and is efficient and durable in use; and to this end it consists, essentially, in the general construction and arrangement of the component parts of the generator, all as hereinafter fully described, and pointed out in the claims.

In describing this invention reference is had to the accompanying drawings, forming a part of this specification, in which like letters indicate corresponding parts in all the views.

Figure 1 is a front perspective of my improved generator. Fig. 2 is a similar perspective of said generator, the front section being removed and the front end of the base being broken away. Fig. 3 is a longitudinal vertical section taken on line 3 3, Fig. 1. Fig. 4 is a longitudinal horizontal section taken on line 4 4, Fig. 1. Fig. 5 is a perspective illustrating the base and sections of my generator as somewhat separated. Fig. 6 is an isometric view of a modified construction of the base portion of my improved generator, and Fig. 7 is a vertical section of a further modified form of base portion.

A A′ A^2 A^3 A^4 are a series of upright sections arranged one in advance of the other for forming the main body of the generator.

B is a base upon which said sections are mounted.

C D are chambers secured, respectively, to the front and rear walls of the sections A A^4, and E F are suitable inlet and outlet fluid-pipes connected to said sections in any desired manner. The sections A A′ A^2 A^3 A^4 preferably consist of upper and lower divisions a a' a^2 a^3 a^4 a^5 a^6 a^7 a^8 a^9, having their adjacent lower and upper walls formed substantially flat and detachably engaged with each other. As will be hereinafter described, the top walls of the upper divisions and the bottom walls of the lower divisions are formed substantially convex, being curved or deflected toward each other in opposite directions from their central portions, and consequently said sections are readily handled, owing to their rounding surfaces.

The side walls of the divisions a a' a^2 a^3 a^4 are preferably formed substantially parallel and are provided at their lower extremities with longitudinally-arranged hollow projections a^{10}, and the top walls of said sections are formed with substantially smooth and continuous or unbroken outer faces and are curved or deflected downwardly in opposite directions from their central portions.

The front and rear walls of said divisions a a' a^2 a^3 a^4 are usually provided with interlocking tongues and grooves a^{11} a^{12}, are preferably formed flat, and are firmly secured together by bolts A^5, passed through tubes A^6, presently described, and the outer walls of the front and rear divisions a a^4. The upper ends of the front and rear walls of said divisions are decreased in width toward their top edges and are formed with openings or passages a^{13}, alined with each other and arranged centrally in substantially the uppermost portions of said walls, and the front and rear walls of the hollow projections a^{10} are formed with openings or passages a^{14}, alined with each other. The upper and lower openings or passages a^{13} a^{14} are connected together by suitable means and preferably by short tubes or pipes A^6, previously mentioned, having their opposite ends suitably secured in said openings.

The divisions a a' a^2 a^3 are formed with passages or openings in their lower extremities extending lengthwise of the generator for forming the combustion-chamber A^7, and the top walls of said passages or openings are provided with lengthwise corrugations a^{15}, which form the top wall of said combustion-chamber. The divisions a a' a^2 a^3 a^4 inclose suitable fluid-containing chambers having depending branches a^{16}, arranged at opposite sides of the combustion-chamber and com-

municating with the hollow projections a^{10}. Suitable upper and lower passages or openings extend lengthwise of my improved generator in the upper extremities of the divisions $a\ a'\ a^2\ a^3\ a^4$ for forming upper and lower flues $A^8\ A^9$, and a fire-passage A^{10} extends downwardly in the division a^4 from the rear end of the lower flues A^9.

As best seen at Fig. 5, the divisions $a\ a'\ a^2\ a^3\ a^4$ are preferably provided with a number of upper and lower flues $A^8\ A^9$, and the lower portions of the rear ends of the flues A^9 are cut away for forming a comparatively large chamber, which is provided with a rear outlet a^{17} and greatly facilitates the passage of the products of combustion from the fire-passage A^{10} into the flues A^9. The lower end of the fire-passage A^{10} is connected to the upper portion of the rear end of the combustion-chamber A^7 by a fire-passage A^{11}, extending through the division a^3, which is arranged in front of the division a^4 and is provided with a bridge-wall A^{12}, preferably formed hollow and arranged at the rear of the combustion-chamber beneath the fire-passage A^{11}. The water-containing chamber of the rear division a^4 preferably extends only a limited distance beneath the fire-passage A^{10} and the top edge of the bridge-wall A^{12}, and the lower end of said division a^4 is formed with a cut-out A^{13}, which is arranged at the rear of the bridge-wall A^{12} for decreasing the weight of said division and may be dispensed with, if desired. The divisions $a\ a'\ a^2\ a^3\ a^4$, just described, form the heating portion of my improved generator, and it will be particularly noted that the construction and arrangement of their fluid-containing chambers, fluid-passages, bridge-wall, fire-passages, and flues render said generator particularly practical and effective.

The lower divisions $a^5\ a^6\ a^7\ a^8\ a^9$ of the upright sections of my generator, which are secured together by any suitable means unnecessary to herein illustrate and describe, preferably inclose the ash-pit A^{14}, and their front and rear faces are formed substantially flat, are arranged in close contact, and decrease in width toward their bottom edges. The bottom walls of said divisions are substantially convex, being curved or deflected upwardly in opposite directions from their central portions. The outer faces of the divisions $a^5\ a^6\ a^7\ a^8\ a^9$ are preferably formed with shoulders a^{18} for engaging the longitudinal sides of the base B, presently described, and outwardly-projecting flanges arranged beneath the opposite sides of the divisions $a\ a'\ a^2\ a^3\ a^4$, and the upper ends of the inner faces of said sections are formed with shoulders which support a suitable grate G, Figs. 2 and 5. The division a^8 is preferably formed with a wall a^{19}, which extends downwardly from the bridge-wall A^{12} and forms the end of the ash-pit A^{14}. The divisions $a^5\ a^6\ a^7\ a^8\ a^9$ form the base portion of the main body of my improved generator; but it will be evident that, if desired, said base portion, instead of consisting of a number of upright divisions, may be composed of a single continuous piece. I have therefore, at Fig. 6, shown such a base portion A^{20}, which it will be readily apparent is of similar form to the preferable construction of the base portion of my improved generator. Moreover, if desired, the base portion of my generator may be formed angular in cross-section, and consequently in Fig. 7 I have shown a vertical section of a base portion A^{30}, having angularly-arranged side walls.

The upright sections $A\ A'\ A^2\ A^3\ A^4$ of the main body of my generator are preferably mounted upon a base B, which may consist of a single piece or several sections arranged end to end and extends from front to rear of the generator beneath said sections. The upper face of the base B is preferably formed concave and is provided with separated longitudinal bearing-surfaces $b\ b$ for engaging the adjacent faces of the divisions $a^5\ a^6\ a^7\ a^8\ a^9$ of the sections $A\ A'\ A^2\ A^3\ A^4$. The chamber C connects the front ends of the flues $A^8\ A^9$, and the chamber D connects the rear ends of the flues A^8 and the outlet a^{17} to a draft conduit or pipe d. Suitable dampers $d'\ d^2$ may be arranged, respectively, in the chamber D and the conduit d for varying the path and the draft of the products of combustion.

My improved generator will now be readily understood upon reference to the foregoing description and the accompanying drawings, and it will be particularly noted that I do not herein specifically limit myself to the exact detail construction and arrangement of its component parts, as the same may obviously be varied without departing from the spirit of my invention.

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

1. A generator comprising upright sections arranged one in advance of the other and inclosing the combustion and heating chambers, said sections being composed of upper and lower divisions, a number of said sections being provided with substantially flat front and rear faces having their upper and lower portions decreased in width toward their top and bottom edges and having the front and rear walls of their upper divisions formed with upper and lower fluid-openings, connecting-tubes having their opposite ends arranged in adjacent openings, and bolts passed through said tubes and the upper divisions of the sections, substantially as and for the purpose specified.

2. A generator comprising an upper part composed of upright divisions arranged one in advance of the other and having their top walls deflected downwardly in opposite directions from their central portions, said upper part inclosing the combustion and heating chambers of the generator, and a lower part having its bottom wall deflected upwardly in

opposite directions from its central portion, said lower part inclosing the ash-pit, substantially as and for the purpose described.

3. A generator comprising upright sections arranged one in advance of the other and having their top and bottom walls deflected toward each other in opposite directions from their central portions, said sections being composed of upper and lower divisions, the upper divisions inclosing the combustion and heating chambers, and the lower divisions inclosing the ash-pit, substantially as and for the purpose set forth.

4. In a generator, the combination of upright sections arranged one in advance of the other and having their top and bottom walls deflected toward each other in opposite directions from their central portions, said sections being composed of upper and lower divisions, the upper divisions inclosing the combustion and heating chambers, and the lower divisions inclosing the ash-pit, and having their inner sides provided with shoulders, and a grate supported on said shoulders, substantially as described.

5. A generator comprising a base extending lengthwise thereof, upright sections arranged one in advance of the other upon the base and each consisting of upper and lower divisions, the upper divisions being provided with connected fluid-containing chambers, and inclosing the combustion-chamber, and the lower divisions inclosing the ash-pit, substantially as and for the purpose set forth.

6. A generator comprising upright sections arranged one in advance of the other and consisting of upper and lower divisions, the upper divisions inclosing the combustion-chamber and being provided with connected fluid-containing chambers and openings extending through the fluid-containing chambers from front to rear for forming flues, and the lower divisions inclosing the ash-pit, one of said upper divisions being formed with a hollow bridge-wall arranged at the rear of the combustion-chamber, and a fire-passage arranged above the bridge-wall and communicating with the combustion-chamber and the adjacent flue-opening, and one of said lower divisions being formed with a wall arranged at the rear of the ash-pit and extending downwardly from the bridge-wall, substantially as and for the purpose described.

In testimony whereof I have hereunto signed my name, in the presence of two attesting witnesses, at Jersey City, in the county of Hudson, in the State of New Jersey, this 21st day of May, 1896.

EDWARD P. WAGGONER.

Witnesses:

J. M. C. THOMAS,

S. E. BRYNER.