

(No Model.)

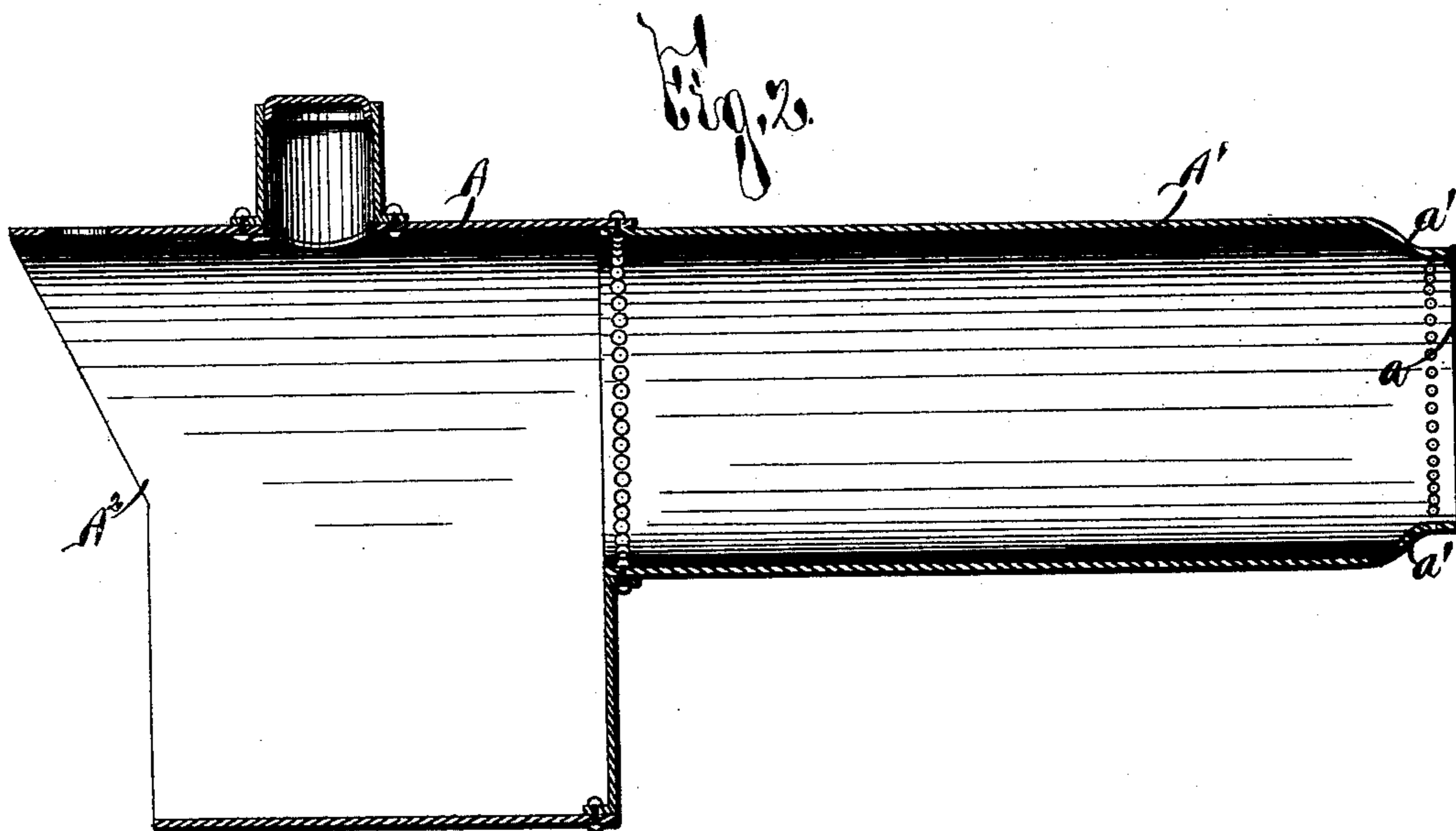
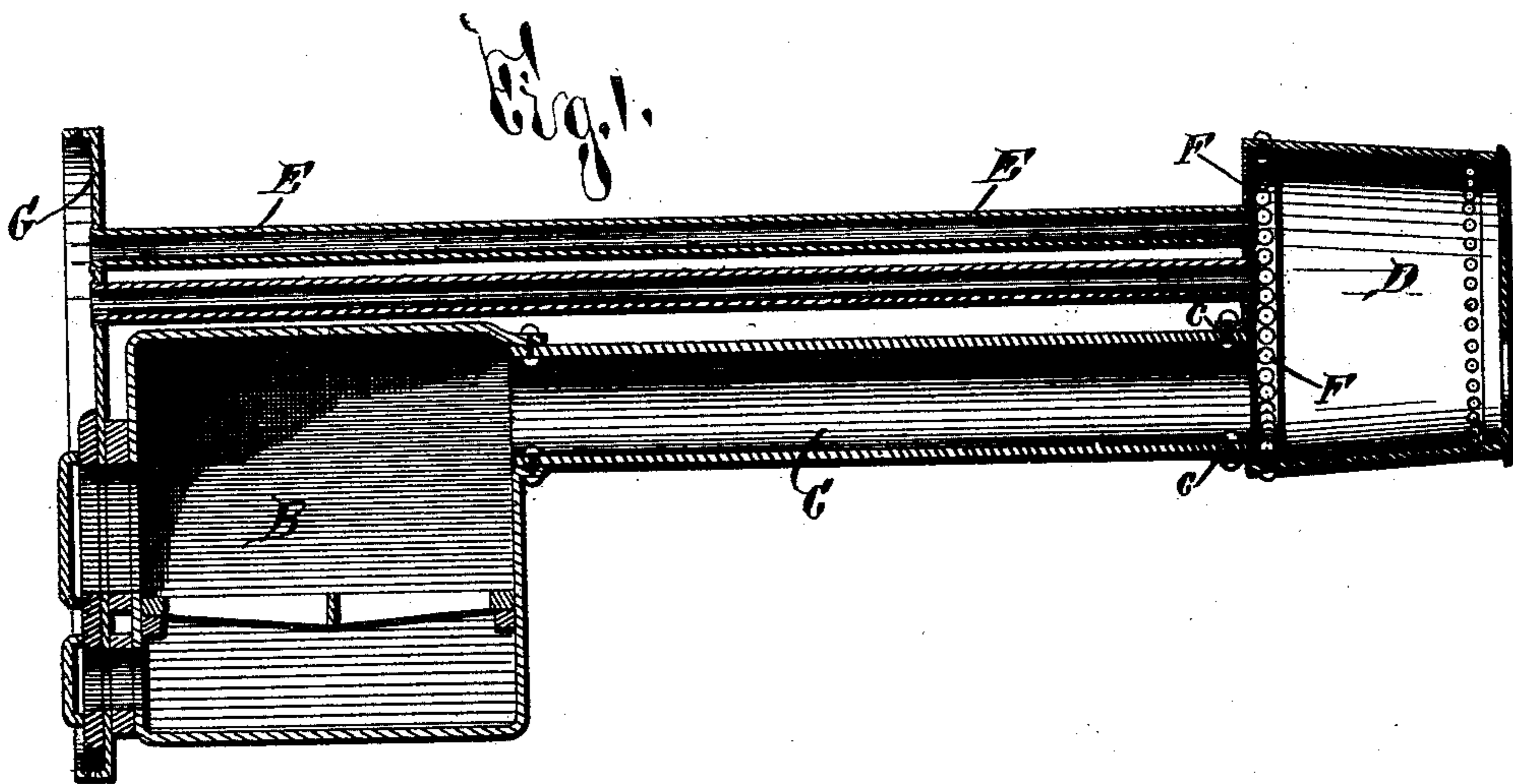
2 Sheets—Sheet 1.

W. J. RANTON.

PROCESS OF CONSTRUCTING BOILERS.

No. 414,168.

Patented Oct. 29, 1889.



WITNESSES:

A. Parsons
C. H. Tomlinson

INVENTOR

William J. Ranton
BY
George W. Hey
ATTORNEY

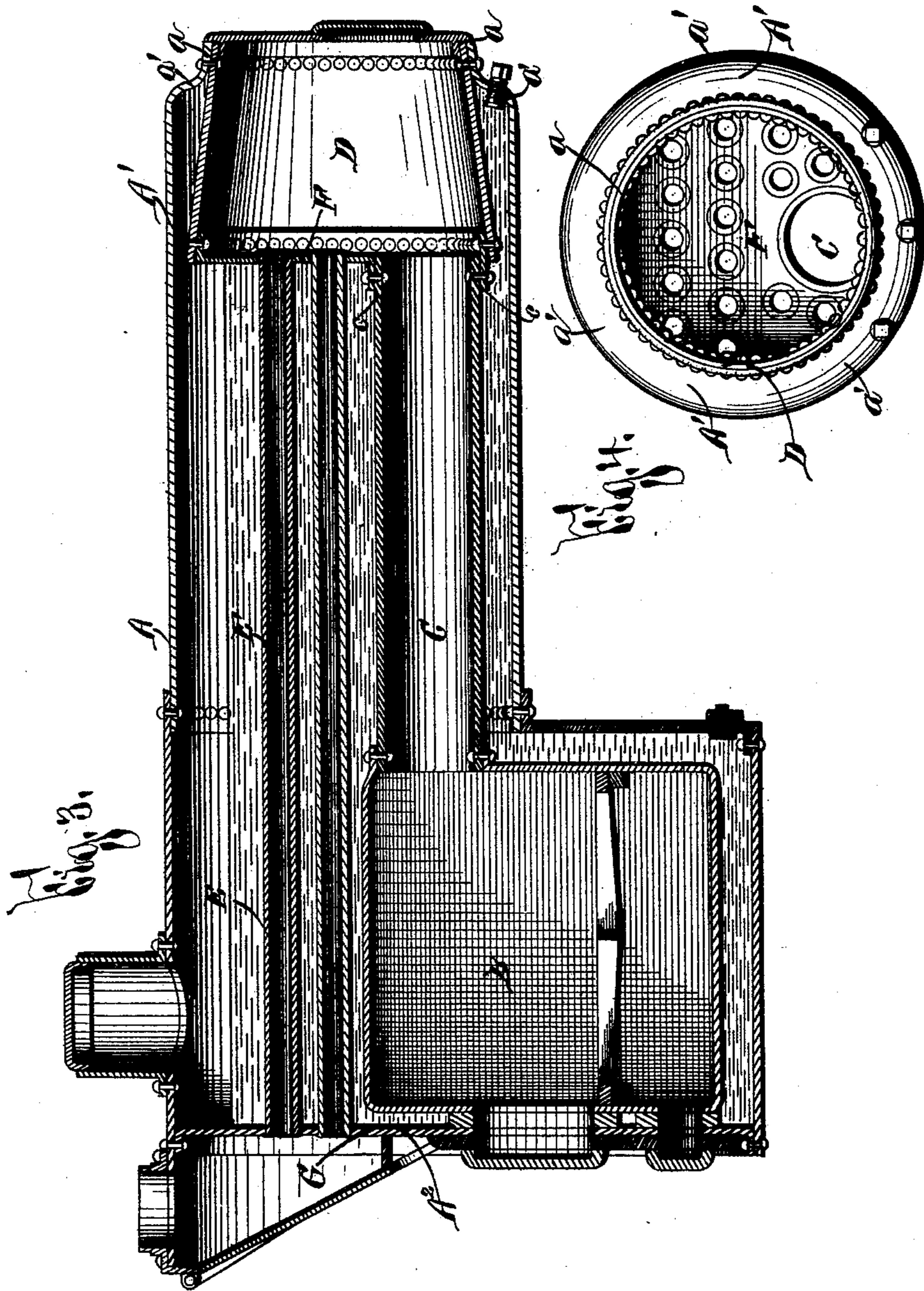
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UNITED STATES PATENT OFFICE.

WILLIAM J. RANTON, OF SYRACUSE, NEW YORK, ASSIGNOR TO THE PORTER MANUFACTURING COMPANY, (LIMITED,) OF SAME PLACE.

PROCESS OF CONSTRUCTING BOILERS.

SPECIFICATION forming part of Letters Patent No. 414,168, dated October 29, 1889.

Application filed July 3, 1889. Serial No. 316,434. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM J. RANTON, of Syracuse, in the county of Onondaga, in the State of New York, have invented new and
5 useful Improvements in a Process of Constructing Boilers, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

My invention relates to an improved process of constructing boilers; and it consists, essentially, in constructing the outer casing
10 of the boiler, then securing or riveting together the interior parts of said boiler, and finally forcing the said interior parts into operative position within the outer casing or boiler-shell.

It furthermore consists in calking the fire-tube from the outside, so that the oozing of water from the water-space is effectually pre-
20 vented.

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

Figure 1 is a longitudinal sectional view of the interior parts of the boiler secured together. Fig. 2 is a longitudinal sectional view of the outer casing of the boiler. Fig. 3 is a
30 longitudinal sectional view of the boiler, the parts thereof being shown in operative position; and Fig. 4 is an end view of the boiler-extension.

A represents the outer boiler shell or casing, of suitable size and material, and formed or provided with the forward extension A', preferably of circular form, and having the open rearward extremity A². The extension A' is provided with a contracted opening a,
40 formed by bending the shell inward and forming the shoulder or flange a'.

Secured to the fire-box B and discharging therefrom is the fire-flue C, opening into a smoke-box D, from which the smoke passes
45 into the flues E. Secured at one extremity of the smoke-box is the flue-sheet F. The opposite flue-sheet G is secured to the fire-box B, and secured in any desirable manner to the flue-sheets G and F are the flues E.

50 After securing together the interior parts of the boiler, as shown in Fig. 2 and previ-

ously described, I prefer to calk at the point c the outside of the flue C, thus effectually preventing the leakage of the water from the water-space. After the boiler-shell has been
55 formed in the desired manner and the interior parts of the boiler-shell are secured together, the said interior parts are then forced into operative position within the boiler-shell. This movement is allowed, as the smoke-box
60 D is of less diameter than the inside diameter of the boiler, and also by the open extremity A² of said boiler-shell. In order to further allow of the securing of the boiler within the shell A, I prefer to make the smoke-box D of
65 conical shape, with its smaller extremity in front.

The placing of the interior parts of the boiler within the shell A may be accomplished by any desired means. My preferable prac-
70 tice is to set up the shell in position, then support the interior parts of the boiler upon a crane or other suitable elevating device, and then force said parts within the boiler.

It is frequently necessary to use a clamping
75 device to force the forward extremity of the fire-box D to its desired position after the forward edge thereof reaches the contracted opening. The preferable manner of obtaining this pressure is to extend a rod through
80 the interior of the boiler. A bar or plate is then secured at one extremity of the boiler and bears against the rear flue-sheet G. The opposite extremity of this extending bar is provided with a nut, which bears against a
85 bar or plate bearing upon the edge of the contracted opening A'. By screwing up this nut it will be seen that the extremity of the smoke-box will thus be drawn to the desired position in the contracted opening A². This
90 pressure device, however, is necessary only in the last portion of the movement of the interior parts within the shell.

By my process a boiler may be constructed quickly and economically, and the interior
95 parts, with the exception of the flues, may all be riveted together quickly, and, if desired, by a riveting-machine. The flues may thus be secured in their desired position.

I do not limit my process to the employment
100 of a conical smoke-box, nor to the securing of the flues before the entrance of the interior

parts within the shell. Indeed in some cases I prefer to secure the flues in their desired position after the remaining interior parts have been placed in operative position within the shell A. I also do not limit my invention to the described order of the steps.

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

10 1. The herein-described process of constructing boilers, the same consisting of forming the outer shell, then securing together the interior parts of the boiler, and finally forcing said interior parts into operative position within said shell, substantially as described.

15 2. The herein-described process of constructing boilers, the same consisting in forming the outer shell, securing together the interior parts of the boiler, securing the flues in operative position, and then forcing the interior parts of the boiler to their operative position within the shell, substantially as described.

25 3. The herein-described process of constructing boilers, the same consisting of calking the flue before its placing within the boiler-shell, substantially as described.

30 4. The herein-described process of constructing boilers, the same consisting of forming the outer shell, securing together the interior parts of the boiler, securing the flues

to the flue-sheets, calking the fire-flue from the outside thereof, and then securing said interior parts within the boiler-shell, substantially as described.

35 5. The herein-described process of constructing boilers, the same consisting of forming the outer shell, bending inward the forward extremity of said shell and forming a contracted opening, bending or turning a boiler-plate into a conical-shaped smoke-box, securing flues in the crown-sheet at the rearward large extremity of said conical-shaped smoke-box, placing the fire-box in relative position in relation to said smoke-box, securing the fire-flue to said fire-box and crown-sheet in the smoke-box, then forcing the said parts within the outer shell, and finally riveting the forward small extremity of the conical-shaped smoke-box to the contracted opening at the forward extremity of the boiler-shell, substantially as and for the purpose set forth.

In testimony whereof I have hereunto signed my name, in the presence of two attesting witnesses, at Syracuse, in the county of Onondaga, in the State of New York, this 18th day of June, 1889.

WILLIAM J. RANTON.

Witnesses:

CLARK H. NORTON,
A. E. PARSONS.