

No. 658,096.

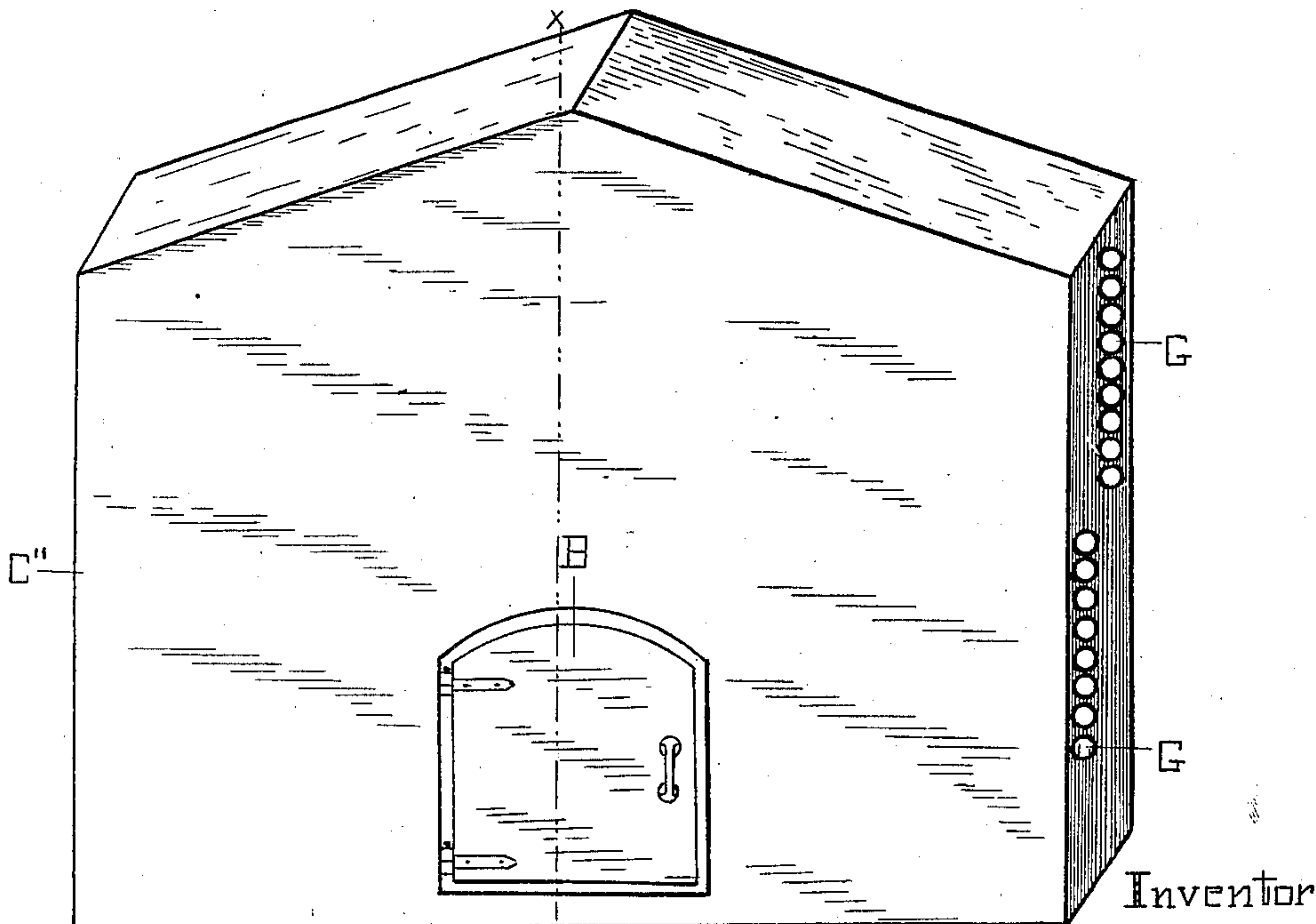
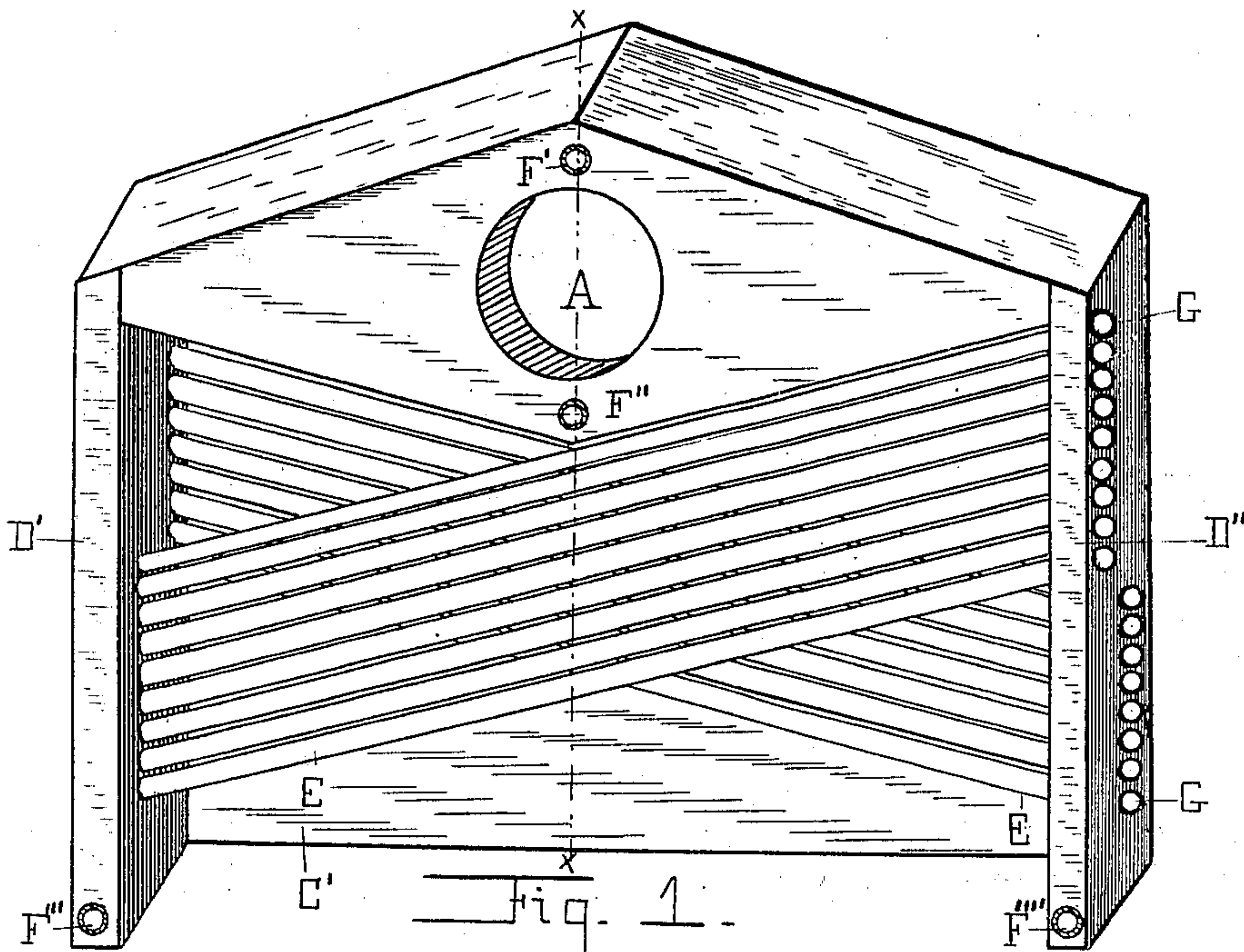
Patented Sept. 18, 1900.

I. SEDGWICK.
STEAM BOILER.

(Application filed Dec. 22, 1899.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses

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Fig. 2.

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Fig. 3.

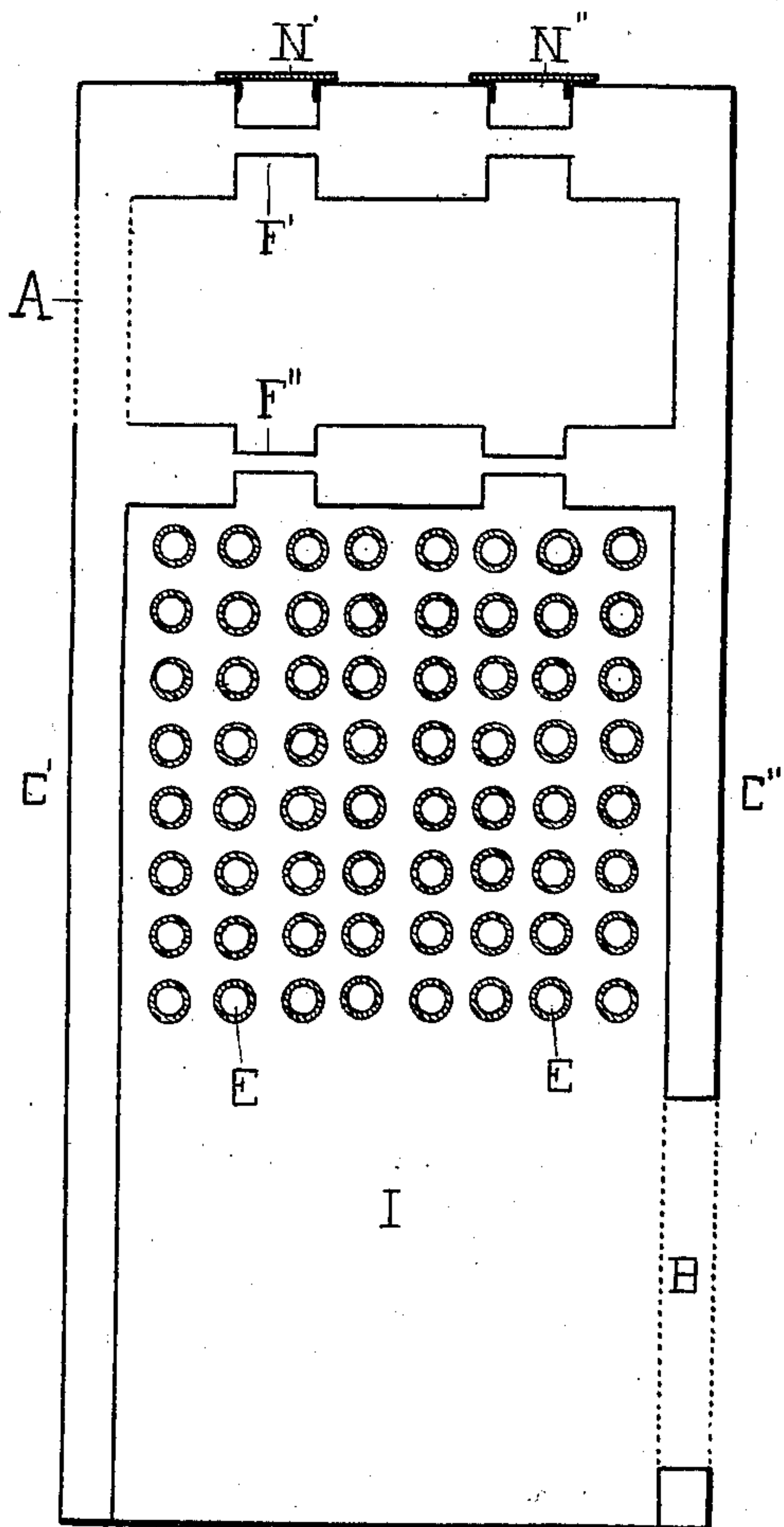
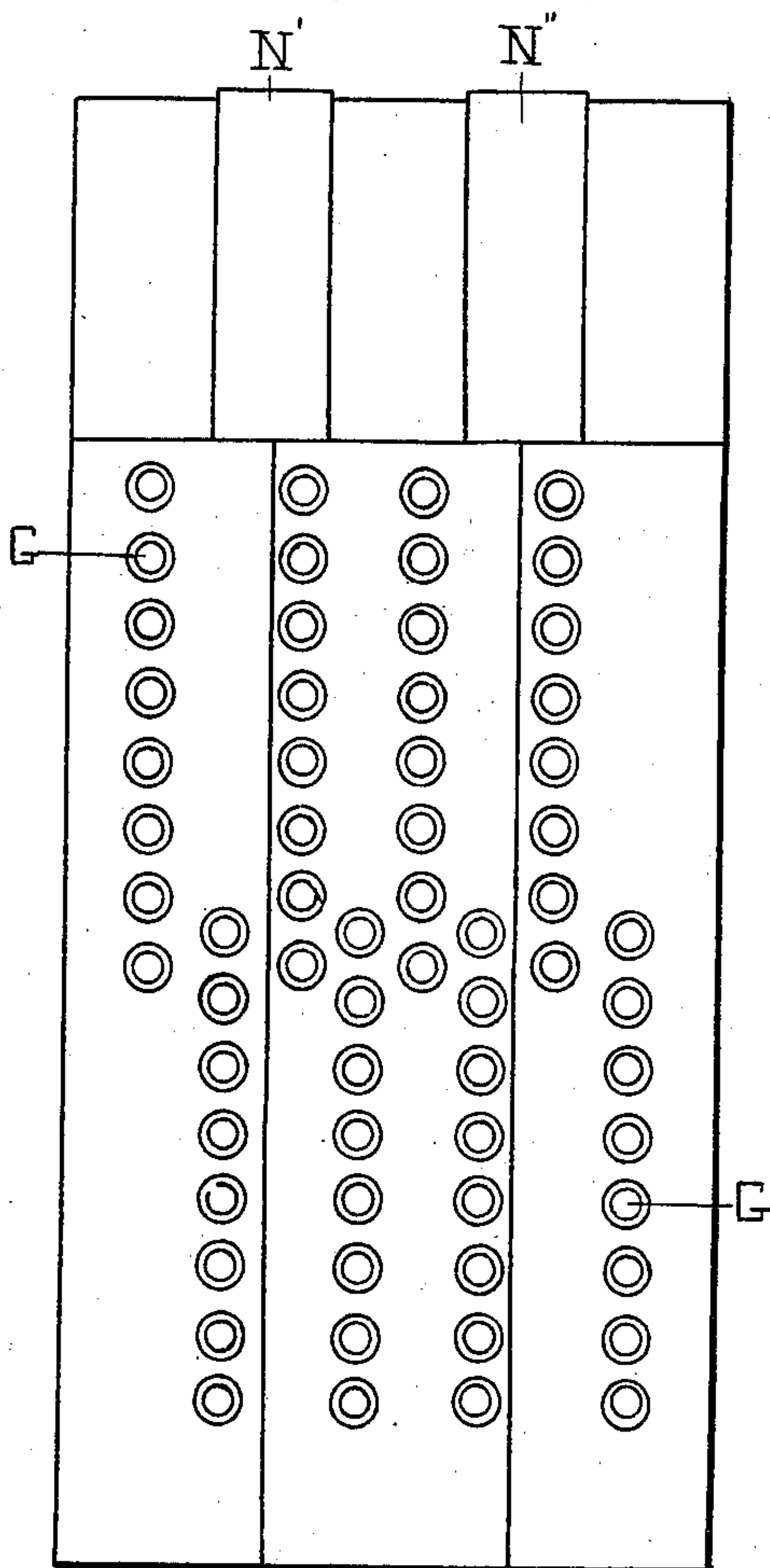


Fig. 4.



Witnesses

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UNITED STATES PATENT OFFICE.

ISHAM SEDGWICK, OF RICHMOND, INDIANA.

STEAM-BOILER.

SPECIFICATION forming part of Letters Patent No. 658,096, dated September 18, 1900:

Application filed December 22, 1899. Serial No. 741,219. (No model.)

To all whom it may concern:

Be it known that I, ISHAM SEDGWICK, a citizen of the United States, residing at Richmond, in the county of Wayne and State of Indiana, have invented new and useful Improvements in Steam-Boilers, of which the following is a specification.

My invention relates to improvements in steam-boilers in which a large steam capacity is attained in a comparative small space; and the objects of my improvements are, first, to provide a steam-boiler that will be easy of construction and one that can be readily and easily repaired; second, to provide a boiler having duplicate parts, by which the capacity can be increased or diminished at will; third, to provide a boiler with great heating capacity with a comparative small amount of material and to occupy a small amount of space; fourth, to provide a boiler that will hold a small amount of water to steam quickly and to be light, strong, and safe; fifth, to provide a new article of manufacture in a steam-boiler that can be made and sold at a comparative small cost and at the same time capable of developing a great amount of steam quickly, and, sixth, to provide a boiler that will produce dry steam with perfect circulation and be especially adapted for use on vehicles.

I attain these objects by the combination and arrangement of parts illustrated in the accompanying drawings, in which—

Figure 1 is a perspective inside view of the rear section. Fig. 2 is a perspective outside view of the front section of my boiler. Fig. 3 is a sectional elevation of the front, rear, and an intermediate section, taken on the line X X of Figs. 1 and 2; and Fig. 4 is an outside view of the front, rear, and an intermediate section.

Similar letters of reference refer to similar parts throughout the several views.

My boiler is composed of two or more sections, each complete in itself and with complete circulation in itself, joined together and connected by pipes leading from one section to the other, so as to form a boiler of any capacity desired.

An exit-flue A is provided in either the rear or front section, or it may be between the sections, but I prefer to place it in the rear sec-

tion, as shown in the drawings, and the front section is provided with a fuel-door B. Otherwise the two outside sections are duplicates of each other. With this in mind it will be seen that Fig. 1 is an inside view, and Fig. 2 an outside view, of the outside or end sections.

The rear wall C' and the front wall C'' and the water-legs D are made of two thicknesses of material, with space between for water and steam, tied together at frequent intervals by stays of metal extending from one plate to the other, thus tying the plates to prevent them from spreading apart.

Each section is provided with two or more sets of water-tubes E, placed at an incline opposite to each other, the ends of said water-tubes being secured in the inner plate of the water-legs D, thus making a connection between the water-legs D by means of said water-tubes E. Opposite the end of each water-tube, in the outside plate of the water-legs, openings with plugs G are provided, the object of which is to afford means for cleaning the inside of the water-tubes and in replacing or removing the water-tubes.

F' F'' F''' F'''' represent openings into the steam-receptacle and the water-legs of each section, as shown in Fig. 1. Corresponding openings are also in the rear of the front section, Fig. 2. These openings are adapted to receive nipple-pipes, one end of the nipple to be secured in the openings F on the rear section and the other end of the nipple to be secured in a corresponding opening in the front section, thus uniting the two sections and by this providing for circulation between the sections.

Caps or flanges N' and N'' are provided to cover the space between the sections, as shown in Figs. 3 and 4. Should it be desired to increase the size and capacity of the boiler, then in that case intermediate sections without front or back walls can be put in between the front and rear sections, as shown in Fig. 3. The intermediate sections have neither a back nor front plate or wall, as do the front and rear sections; but they have water-legs and steam-space to correspond with the water-legs and the steam-space on the front and rear sections. They are also provided with two or more sets of water-tubes placed at an incline

to each other. I have found it preferable to provide the outside sections with two sets of water-tubes and the intermediate sections with four sets of water-tubes, as shown in Fig. 3. The intermediate sections are provided with steam-space corresponding with the steam-space on the outside sections and also with openings on each side for connecting with other sections and with openings through the steam-space corresponding with the flue-escape in the outside sections.

My boiler is especially applicable for use on vehicles, where a great amount of energy is to be developed quickly and where the weight of the boiler should be reduced to a minimum. It will be seen by reference to the drawings that I accomplish this by having the water-tubes near to and partially surrounding the fire-box I and by means of the water-legs and the water back and front of the boiler coming near and forming part of the fire-box and by bringing the water near the fire-box in every direction, so that no heat is lost. Another important advantage that is evident is that the boiler can be made small and compact by simply joining the front and rear sections, or it can be made larger by placing intermediate sections between the front and rear sections until the boiler is of the desired capacity.

It will of course be understood that various changes in the form, proportion, and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

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

1. In a sectional boiler, sections having water-legs at each side united at the top with a water and steam space of less width than the water-legs, so as to allow room for the passage of smoke to the top steam-space where the side parts are brought to other similar-constructed sections, such sections having one or more groups of water-tubes reaching from the lower part of one leg to the higher part of the opposite leg, groups of water-pipes slanting in opposite directions, all as described.

2. The combination, in a steam-boiler, of a front section provided with a double wall constituting a water-space, a fuel-door and water-tubes at an angle, a rear section provided with a double wall constituting a water-space, an exit-flue and water-tubes placed at an angle, intermediate sections with water-legs and water-tubes placed at an angle

and all the sections joined together by pipes or nipples to form a complete boiler, all as described and for the purposes set forth.

3. The combination, in a steam-boiler, of a front section provided with double walls constituting a water-space, a fuel-door and with water-tubes placed at an angle, a rear section provided with a double wall constituting a water-space, an exit-flue and water-tubes placed at an angle, intermediate sections provided with water-legs, water-tubes placed at an angle and connecting the legs, an exit-flue extending through the steam-receptacle of the intermediate section and connecting with flue-spaces in the other sections and all the sections joined together by nipples to form a complete boiler, all substantially as described and for the purposes set forth.

4. A steam-boiler comprising independent sections joined together and each composed of water-legs, and water-tubes connecting said legs, and water connections between the sections, one of the outer sections being provided with an exit-flue for carrying off the products of combustion and all of said sections having flue-sections leading to the exit-flue and in communication with the fire-box.

5. A steam-boiler comprising independent sections composed of water-legs, water-tubes connecting the legs, and a steam-drum connecting the water-legs above the tubes, said sections each having a flue for the products of combustion which is within the steam-drum and said flues being in communication with each other when the boiler-sections are together and each flue communicating with the fire-box, and water connections between the sections of the boiler.

6. A steam-boiler comprising independent sections composed of water-legs, a steam-drum in its upper part in which is located a smoke-flue communicating with the fire-box, and water-tubes connecting the water-legs below the drum, said smoke-flues of the sections forming continuations of each other and being provided with an exit in one of the sections, water and steam connections between the steam-drum sections, water connections between the water-legs, and caps which cover the joints where the boiler-sections meet each other.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ISHAM SEDGWICK.

Witnesses:

WILLIAM CAIN,
THOMAS J. FERGUSON.