(No Model.)

J. B. PIERCE & J. BOND.

STEAM RADIATOR.

No. 265,279. Patented Oct. 3, 1882.

Fig. 1.

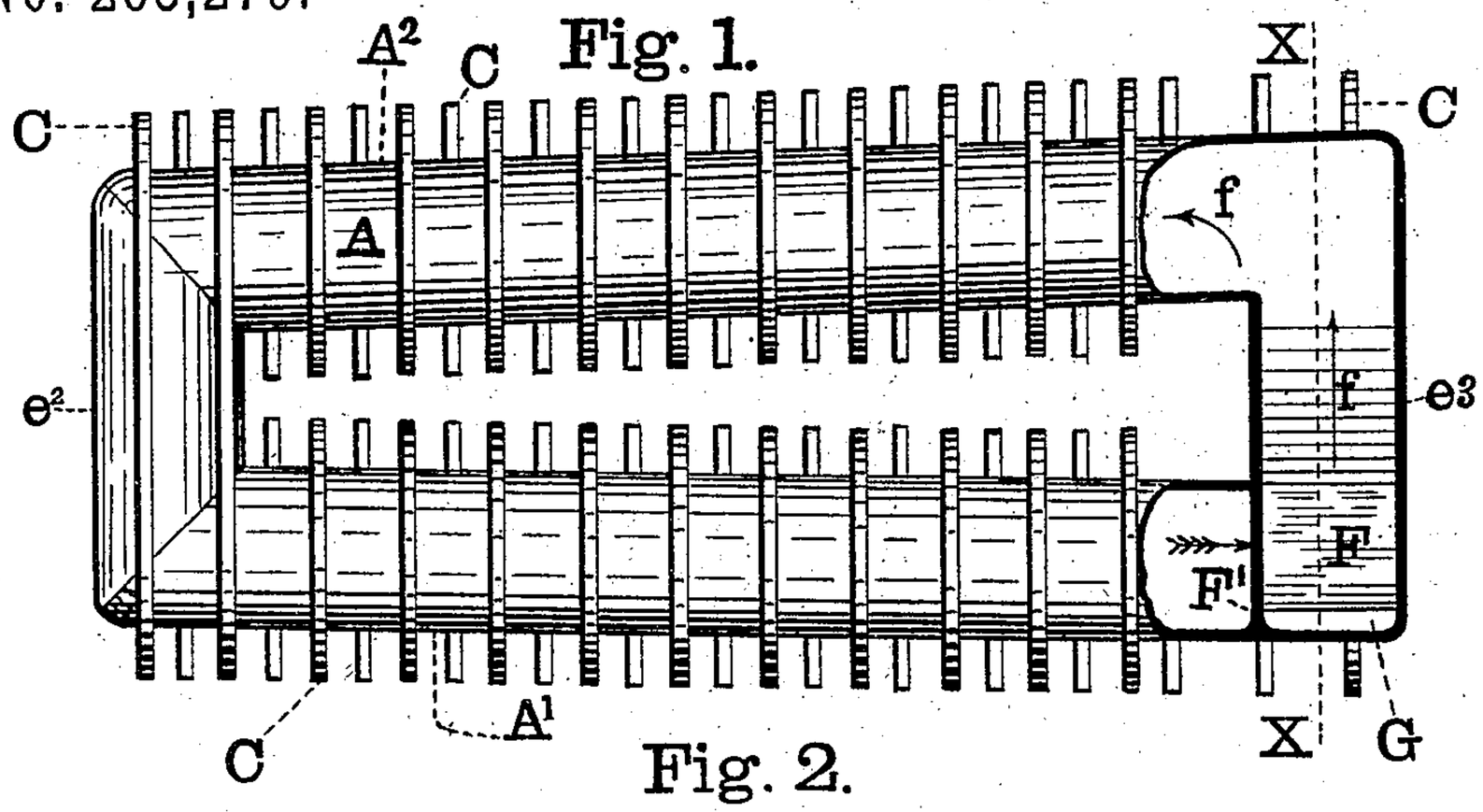


Fig. 2.

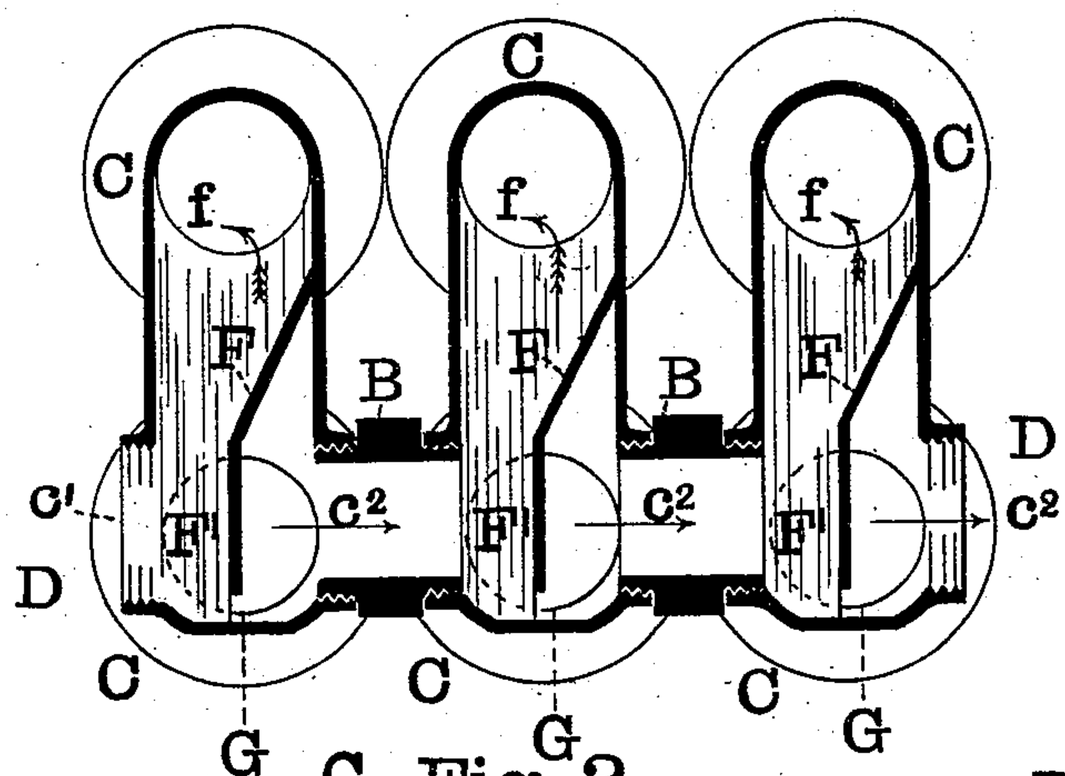


Fig. 3.

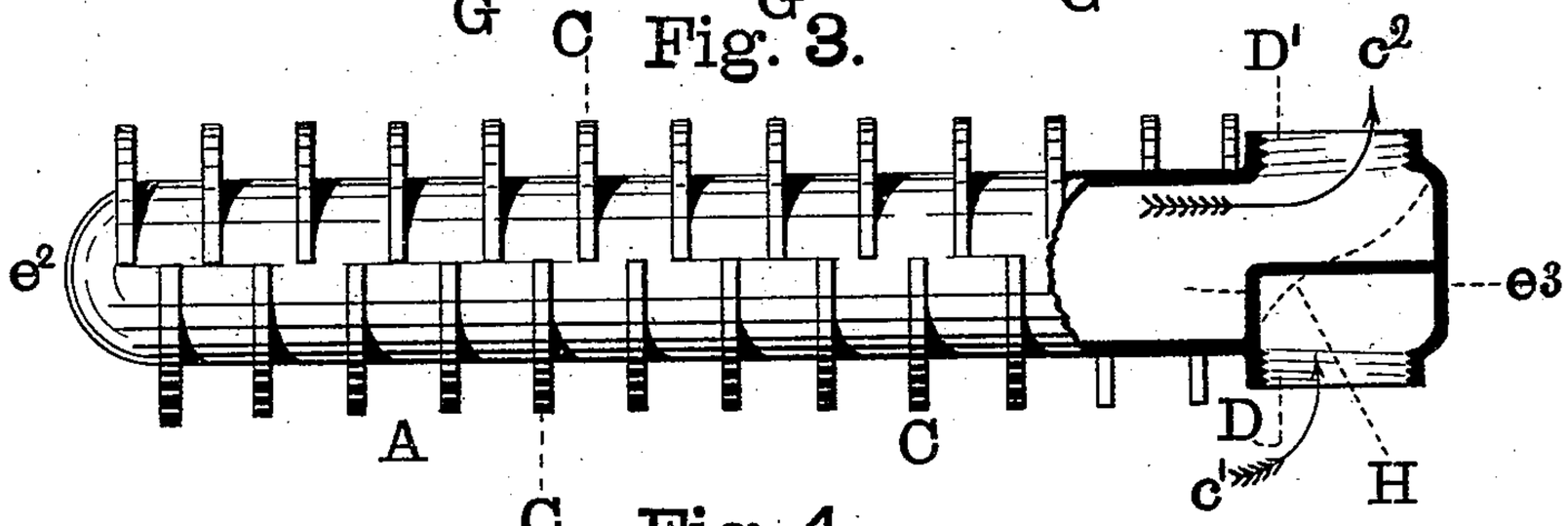
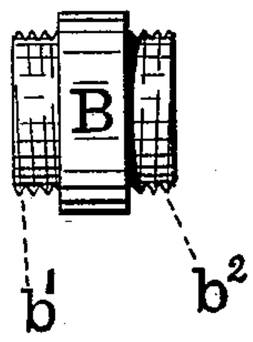


Fig. 4.



Witnesses.

Jos. Schenk.

F. W. Braun.

Inventors,

John B. Pierce.

Joseph Bond.

By James Sangster
Atty.

UNITED STATES PATENT OFFICE.

JOHN B. PIERCE AND JOSEPH BOND, OF BUFFALO, NEW YORK.

STEAM-RADIATOR.

SPECIFICATION forming part of Letters Patent No. 265,279, dated October 3, 1882.

Application filed February 20, 1882. (No model.)

To all whom it may concern:

Be it known that we, JOHN B. PIERCE and JOSEPH BOND, both citizens of the United States, residing in Buffalo, in the county of Erie and State of New York, have invented certain new and useful Improvements in Steam-Radiators, of which the following is a specification.

Our invention relates to certain improvements in steam-radiators, whereby the steam and condensing water pass in the same direction through the sections, and the condensed water passes in a direct line through each of the sections at right angles to the length of the group of sections, and whereby all the sections may be made exactly alike, thereby greatly simplifying the construction of the same, as will be fully hereinafter described by reference to the drawings, in which—

Figure 1 is a side elevation of one of the sections, partly in section. Fig. 2 is a section in line X X, Fig. 1, showing a series of sections secured together and the interior arrangement of the same. Fig. 3 is a bottom view of a portion of one of the sections, showing a portion broken away; and Fig. 4 represents one of the right-and-left-threaded nipples.

A^2 represents one of the sections, which are connected together in the usual way by nipples B, having right and left hand screw-threads b' b^2. (See Figs. 2 and 4.) Each section is provided with the ordinary flanges, C, and with inlet and outlet openings c' c^2, each opening being provided with an internal screw-thread, D D′, to receive the screws b' b^2 of the nipple, by which a series of sections are secured together, as shown in Fig. 2. The radiator-sections may be used singly, or several may be secured together, as shown in Fig. 2, and they are composed of the two nearly horizontal pipes or tubes A A′ and two end pipes, e^2 e^3, forming a complete pipe-circuit. The tubes or pipes are circular in cross-section; but any portion, or the whole, may be square or of any other suitable form. We have shown the horizontal pipes A A′ as slightly inclining in opposite directions, so that the condensing water will flow in the same direction with the steam.

F represents a diaphragm extending in an inclined direction from the inside of the end tube, e^3, to about the center of the same, and then down nearly to the bottom of the inlet and outlet openings c' c^2, as shown in Figs. 1 and 2. It also extends out at F′, so as to partly cover the end of the lower horizontal tube, A′. (See Figs. 1, 2, and 3.) Below the diaphragm F is an opening, G, to allow the condensed water to pass through under the diaphragm. If desired, the diaphragm may be arranged diagonally across the tube, as shown by the dotted lines H in Fig. 3.

In operating with our invention the steam passes in at the opening c', then up one side of the diaphragm in the direction of the arrows f, and then makes a circuit through the pipes and out from the opening c^2 on the other side of the diaphragm. The condensed water passes through the inlet and outlet openings under the diaphragms, and when a number of sections are connected together it passes in a direct line in the same way from section to section and out from the last outlet-opening.

We are aware that in other constructions a radiator-section consisting of two horizontal and vertical pipes, forming a complete pipe-circuit, has been made, or a series of such sections have been connected together; but in such constructions the condensed water and steam do not run through the entire section or a series of such in the same direction. Neither can a series of such sections, when made alike, be put together; nor has the condensed water a free straight passage across a section or from section to section, as in our invention.

We claim as our invention—

1. A steam-radiator consisting of the upper and lower inclined pipes or tubes, A A′, connected by vertical tubes e^2 e^3, and having the inlet and outlet openings opposite and facing each other, and a separating-diaphragm in the vertical portion e^3, projecting downward to near the bottom of the same and partly closing the end of the lower horizontal pipe, both horizontal portions being slightly inclined in opposite directions, whereby the steam as it enters the inlet-opening is compelled to pass the entire circuit of the section before it leaves the outlet-opening, and the water which condenses in the section passes around the same in the same direction with the steam and through the outlet.

2. A series of radiator-sections, each section being provided with a diaphragm, F F′, and connected together by nipples B, adapted to

screw into the inlet and outlet openings, as shown, whereby the steam passes through each section and from section to section, and the condensed water from each section passes at right angles, or nearly so, to the length of the sections in a direct line through the inlet and outlet openings under the diaphragms, substantially as specified.

3. A series of radiator-sections, each section consisting of a complete pipe-circuit, the separating wall or diaphragm, substantially as specified, and the inlet and outlet openings, arranged opposite each other and threaded to receive the nipples, whereby all the sections may be made exactly alike and connected together, so as to form a straight passage from one section to the other, as described.

JOHN B. PIERCE.
JOSEPH BOND.

Witnesses:
JAMES SANGSTER,
HUGH SANGSTER.