(No Model.)

J. BROSIUS.

Radiator.

No. 232,235. **Patented Sept. 14, 1880.**

Fig. 1

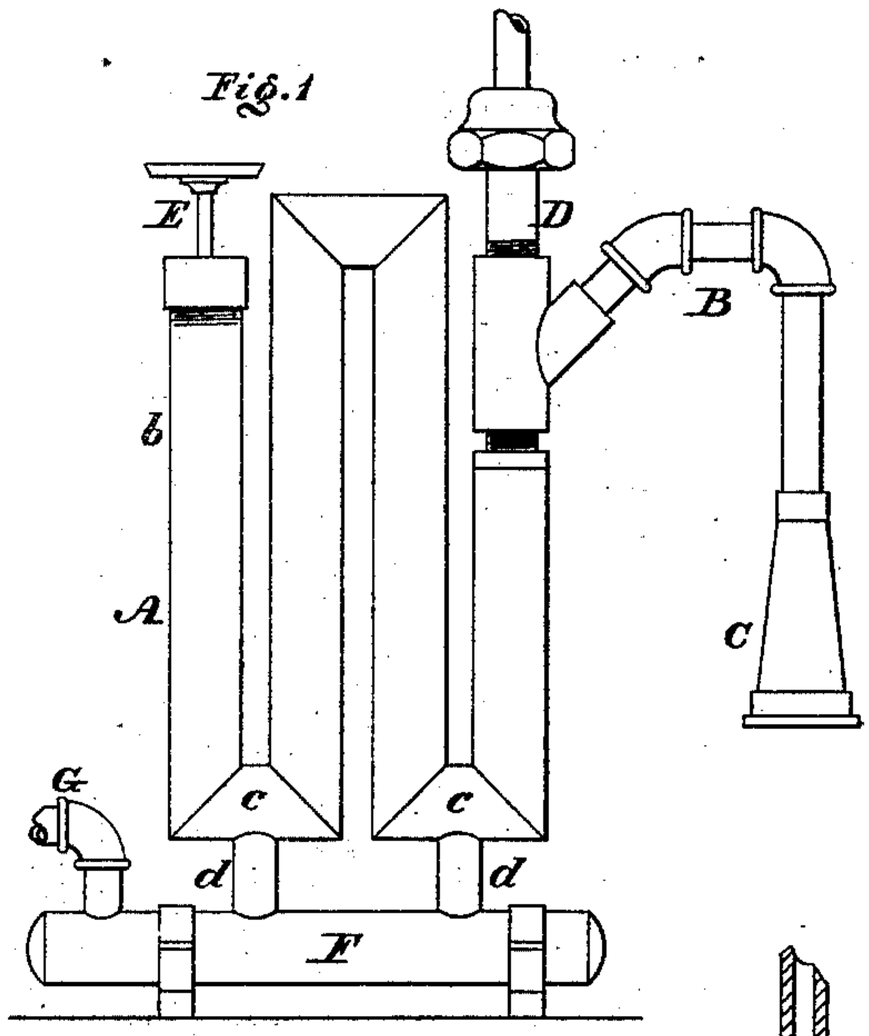


Fig. 2.

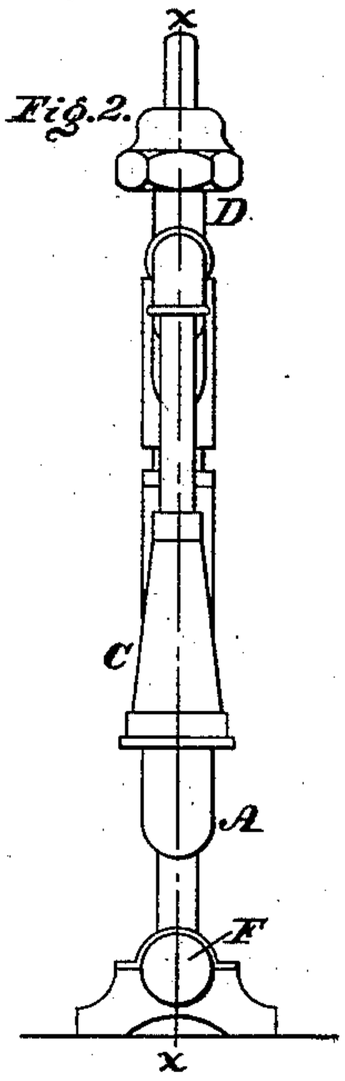
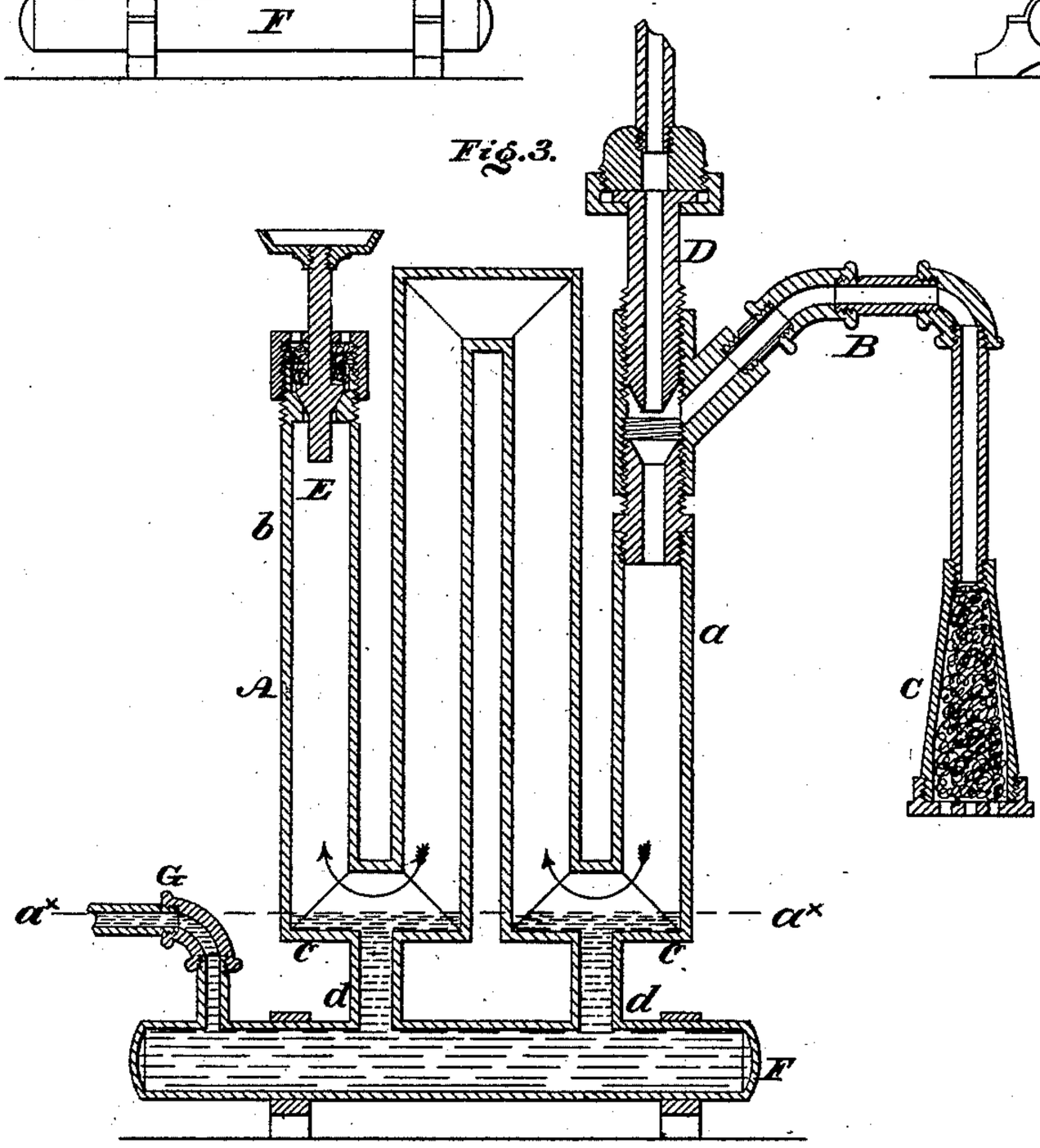


Fig. 3.



Witnesses:

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UNITED STATES PATENT OFFICE.

JACOB BROSIUS, OF BELLEVILLE, ILLINOIS.

RADIATOR.

SPECIFICATION forming part of Letters Patent No. 232,235, dated September 14, 1880.

Application filed June 8, 1880. (No model.)

To all whom it may concern:

Be it known that I, JACOB BROSIUS, a citizen of the United States, residing at Belleville, in the county of St. Clair, State of Illinois, have invented a new and useful Improvement in Radiators, which improvement is fully set forth in the following specification and accompanying drawings, in which—

Figure 1 is a side elevation of the radiator embodying my invention. Fig. 2 is an end view thereof. Fig. 3 is a vertical section thereof, enlarged in line *x x*, Fig. 2.

Similar letters of reference indicate corresponding parts in the several figures.

My invention consists of a steam-radiator adapted to heat an apartment and remove impure air therefrom.

The said invention consists in the peculiar construction of the inlet-funnel, the outlet-valve, and the intermediate parts of the device, and the combination of the same with the tube which receives the water of condensation.

Referring to the drawings, A represents a series of pipes connected by bends or connections, forming a circuitous passage.

To the inlet-pipe *a* of the series is connected a jointed pipe, B, whose end is provided with a funnel, C, and to said inlet-pipe is also connected a steam-pipe, D, the pipes *a* and B forming a siphon, and the inner end of the pipe B projecting into the pipe *a*, adjacent to the connection of the pipe B, so as to act after the manner of an injector.

The terminal pipe *b* of the series of pipes A is provided with an outward-opening valve, E, which is weighted or balanced to permit the escape of steam at a given pressure.

To the bottom bends or connections, *c c*, of the pipes A are secured branches *d*, which form communications between said pipes and a condenser or condensing-chamber, F, which latter is provided with an outlet pipe or branch, G, the height whereof is at a point between the bottom of the main lengths of the pipes A and top of the condenser, so that the water of condensation will fill the condenser F and branches *d* and portions of the bottom bends or connections, *c*, of the pipes to the level—say $a^{\times}$ $a^{\times}$—before escaping through the pipe G, and maintain said level, thus preserving the free communication of the bottom of the pipes, as shown by the arrows, and preventing the entrance and discharge of the steam into and through the condenser.

The radiator is properly supported on a stand or other means in the required apartment.

Steam is admitted into the pipes A through the pipe D, so as to heat the apartment, as is evident, and bad or impure air is drawn through the funnel C and pipe B into the pipes A, whereby it mingles and condenses with the steam, thus purifying the apartment, and also in a measure acting as a ventilator therefor. When the steam is at or above a predetermined pressure it opens the valve E and escapes into the apartment, so as to moisten the air therein. The water of condensation enters the condenser F through the pipes *d*, and continually escapes by means of the outlet G, without, however, permitting the escape of steam.

The funnel C is packed with hair, felt, or other suitable material for preventing the noise of the indraft of air, and the valve E or chamber thereof is also packed with hair, felt, or other material, for preventing the escape of any water of condensation, without, however, preventing the escape of the steam, whether to moisten the air of the apartment or relieve an increased pressure in the pipes A.

Owing to the jointed or swiveled nature of the pipe B or connection of said pipe and the funnel C, the latter may have its mouth set in various positions relatively to the top, bottom, or sides of the apartment to be cleared of foul or impure air.

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

1. In combination with radiator-pipe A and steam-pipe D, the foul-air pipe B and its inlet-funnel C, being packed with hair or other analogous substance.

2. In combination with radiator-pipe A and pipes *d*, the condensing-chamber F, having upwardly-arching outlet G.

3. The radiator-pipes A, with steam-inlet pipe D and air-inlet pipe B, the valve E, and condenser F, combined and operating substantially as set forth.

JACOB BROSIUS.

Witnesses:
MARTIN MEDART,
CHAS. BARN.