

T. BRADFORD.

Range.

No. 43,967.

Patented Aug. 30, 1864.

Fig. 1.

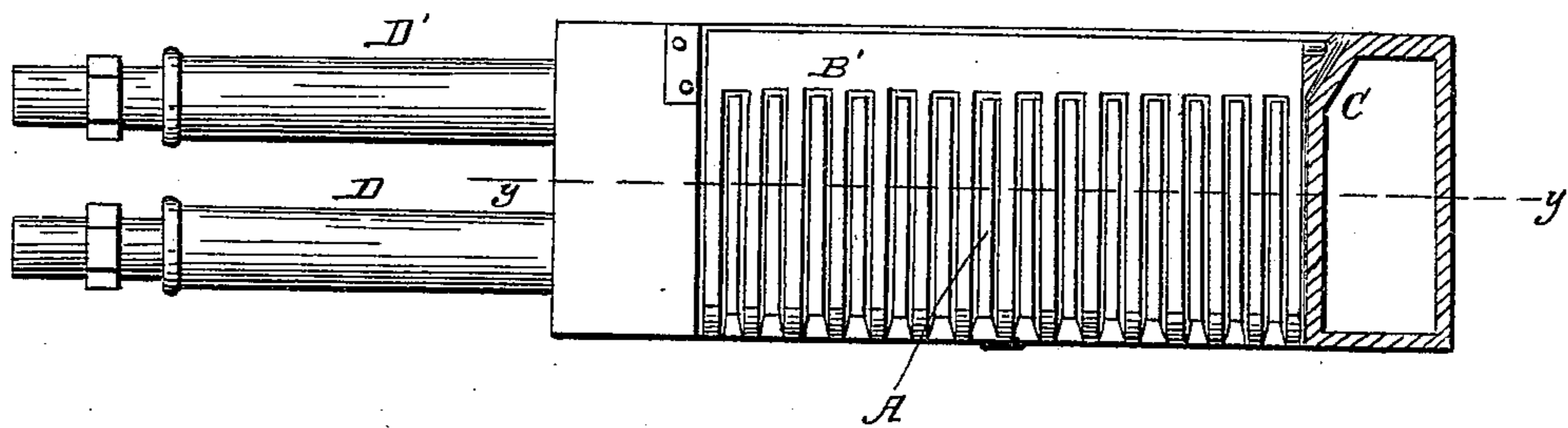
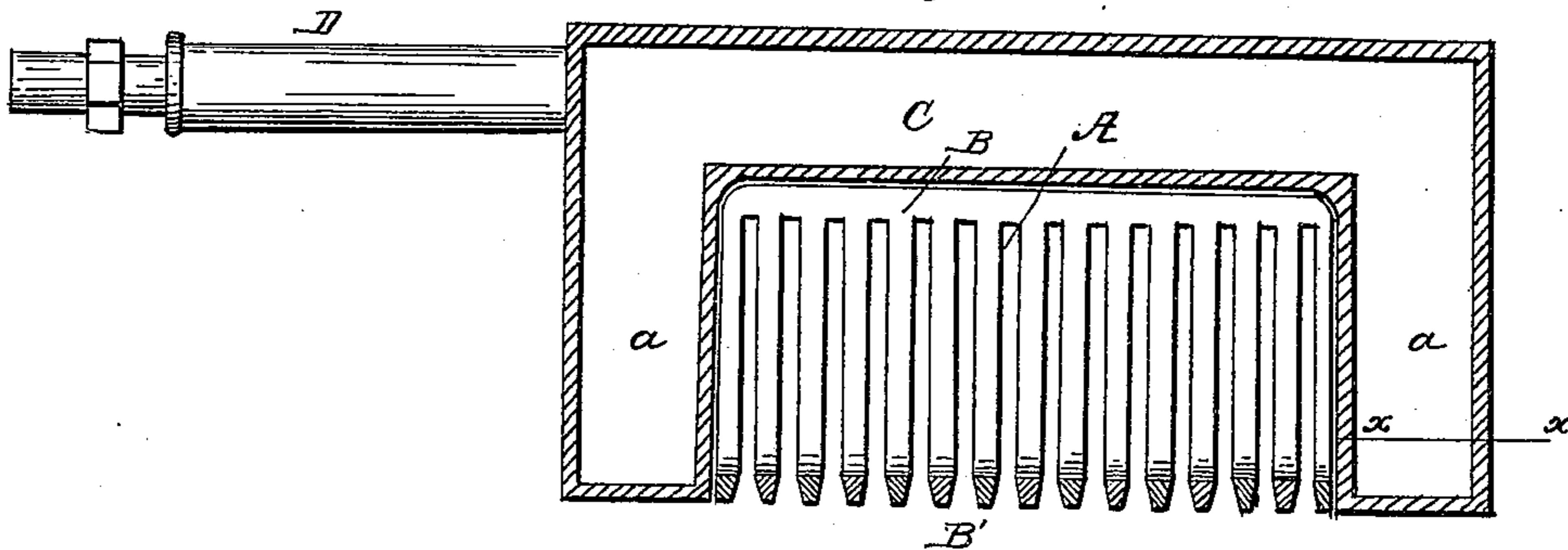


Fig. 2.



Witnesses:
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UNITED STATES PATENT OFFICE.

THOMAS BRADFORD, OF BOSTON, MASSACHUSETTS.

IMPROVED WATER-BACK FOR RANGES.

Specification forming part of Letters Patent No. 43,967, dated August 30, 1864.

To all whom it may concern:

Be it known that I, THOMAS BRADFORD, of Boston, in the county of Suffolk and State of Massachusetts, have invented a new and useful Improvement in Water-Backs for Ranges; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a front view of the grate of a range, partly in section, as indicated by the line *x x*, Fig. 2; Fig. 2, a horizontal section of the same, taken in the line *y y*, Fig. 1.

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

This invention consists in having the water-back extend around the ends of the fire chamber or grate, as hereinafter set forth, whereby a greater heating-surface than usual is not only obtained, but the usual end linings of the fire-chamber or grate dispensed with, as hereinafter set forth.

To enable those skilled in the art to fully understand and construct my invention, I will proceed to describe it.

A represents the fire-chamber of a range; B B' the grate; and C, the water-chamber or space which extends around both ends of the fire-chamber, as shown at *a a*.

D D' are two pipes, which communicate with the water-chamber C. These pipes are placed one over the other. The lower one, D, takes the cold water from the boiler to the chamber C, while the upper one, D', takes the warm water from C to the boiler, thus keeping up a circulation through the chamber C and the boiler in the same way as with the ordinary water-backs. One extension, *a*, may only be used, but both of them would, of course, be

preferable. The ordinary water-backs extend along the back of the fire chamber A only, and hence the sides of the same require to be protected from the heat of the fire by a lining which requires to be renewed about every two years at a cost of from three dollars to five dollars.

My improvement admits of the side linings being dispensed with, as the side extensions of the water chamber protect them, while said extensions augment materially the heating-surface of the water-chamber, two very essential features, as a saving is effected in the repairs of the range, and also a saving effected in the consumption of fuel where hot water is required at all times.

I am aware that Letters Patent, granted on the 17th of June, 1856, to E. Whiteley, describe a circular fire-pot surrounded on all sides by a water-chamber. This I do not claim, and it is moreover inapplicable to my invention, inasmuch as a circular fire-pot cannot properly be used in a range.

I do not claim water-spaces or water-chambers surrounding the fire-chamber for the purpose of protecting the oven against the scorching heat of the fire-chamber.

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

The combination of the water-back C, the end water-chambers, *a a*, the supply-pipe D, discharge-pipe D', and open front grate, B', all constructed, arranged, and employed as and for the purposes herein specified.

THOMAS BRADFORD.

Witnesses:

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