

J. A. CRAWFORD.

Fire Grate.

No. 104,836.

Patented June 28, 1870.

Fig. 1.

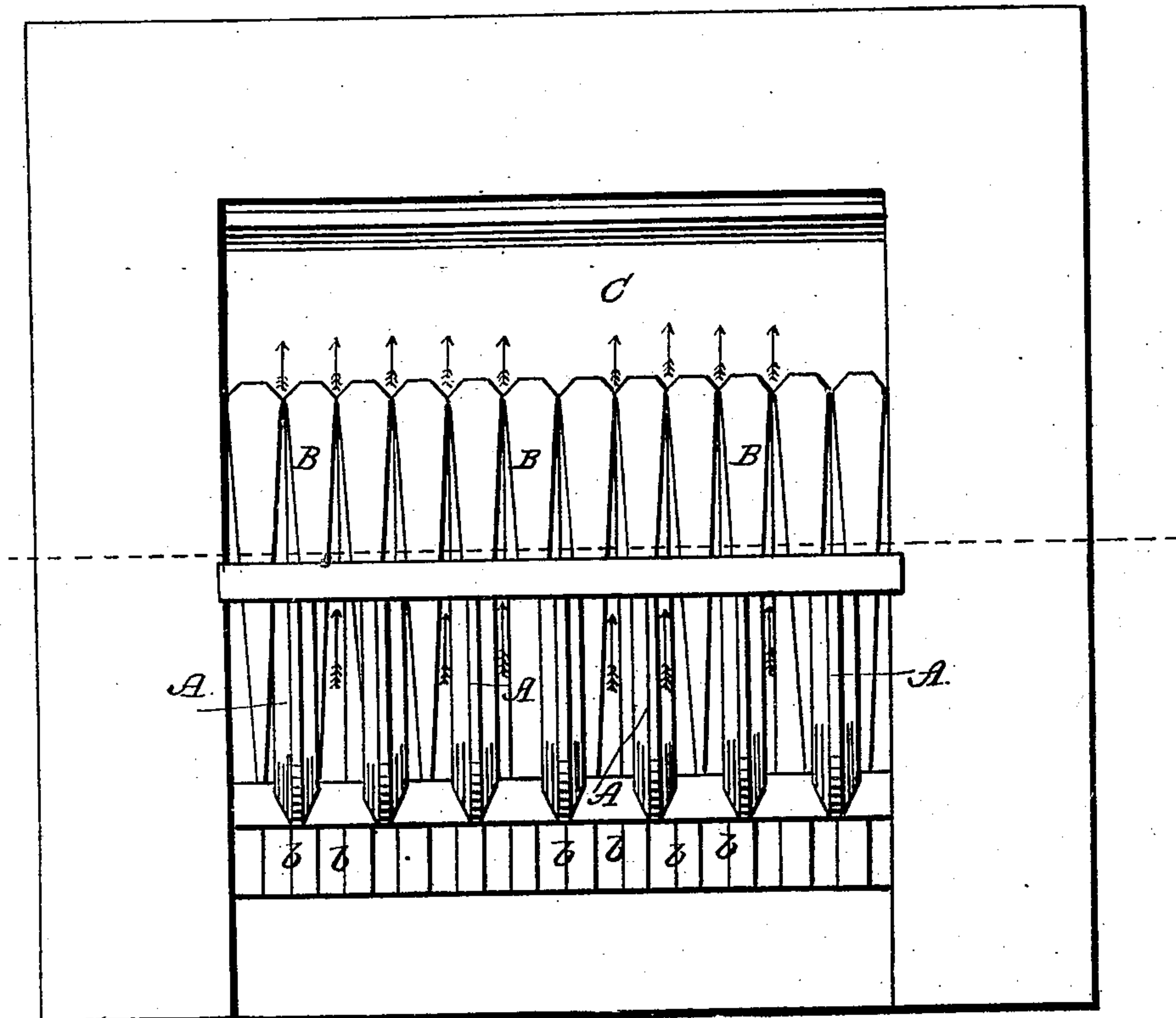
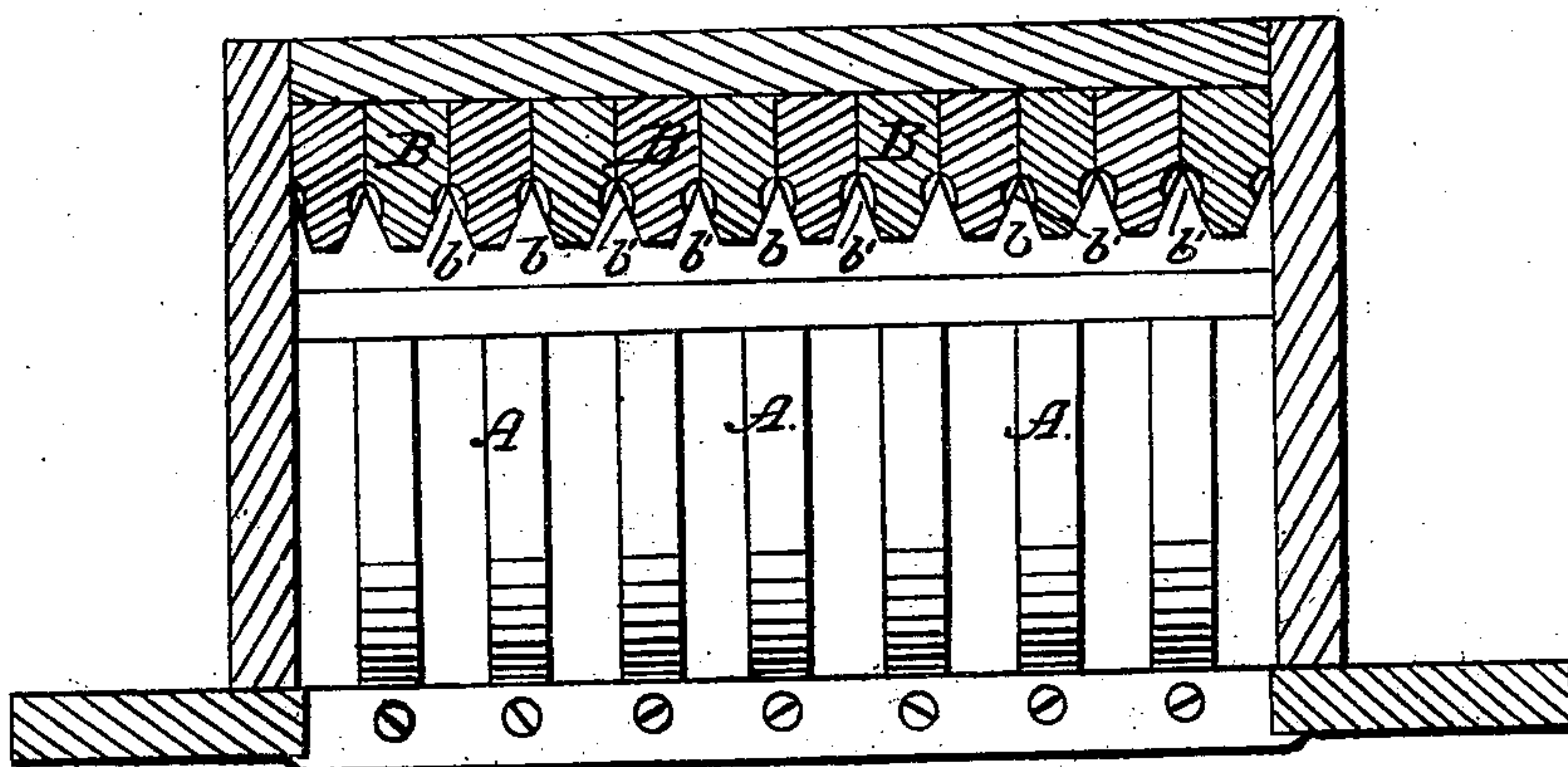


Fig. 2.



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UNITED STATES PATENT OFFICE.

JAMES A. CRAWFORD, OF NEW CASTLE, PENNSYLVANIA.

FIRE-PLACE GRATE.

Specification forming part of Letters Patent No. **104,836**, dated June 28, 1870.

To all whom it may concern:

Be it known that I, JAMES A. CRAWFORD, of New Castle, in the State of Pennsylvania, have invented a new and useful Improvement for Aerating Grate-Backs; 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, and letters of reference marked thereon, making a part of this specification, in which—

Figure 1 is a front elevation, and Fig. 2 a transverse section.

This invention consists in a grate-back, in the front of which vertical grooves are cut for the purpose of directing atmospheric currents against the rear of the fuel in the grate, and in the body of which vertical passages are made for the purpose of directing heated atmospheric currents through the fire-brick, in order that the latter may absorb caloric that would otherwise pass off through the chimney.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

A is the grate, and B the fire-brick back of the grate. The lower edge of the fire-brick extends beneath the grate, and its upper edge to the inclined bridge C, placed above the grate. Vertical air-passages *b* are made in the front of the fire-brick, extending from the top

to the bottom of the same, and in numbers sufficient for the purpose of thoroughly aerating the rear portion of the fuel, said passages being of tapering form, widest at the bottom, so as not to become clogged with coal or ashes; or said vertical air-passages *b* may be of uniform size throughout, of any shape or form desired, and may extend only part way up the fire-brick or other wall back of the grate. There are also other vertical passages, *b'*, in the body of the fire-brick, whose lower ends open into the furrows *b*, whence passages extend to the top of the wall, discharging their currents to the front between the fire-brick and bridge through grooves *b''*, cut transversely of the former. The function of these passages, *b'*, is to conduct the heat through the fire-brick, and thus enable it to absorb a portion of the caloric that would otherwise pass up the chimney, and give it off for the benefit of the apartment.

I claim as my invention—

The fire-brick B, provided with the front grooves, *b*, and the interior passages, *b'*, arranged in the manner and for the purpose specified.

J. A. CRAWFORD.

Witnesses:

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