

A. RAWSON.

Improvement in Grate-Bars for Furnaces.

No. 127,428.

Patented June 4, 1872.

Fig. 1.

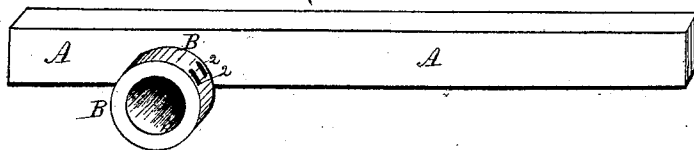


Fig. 2.

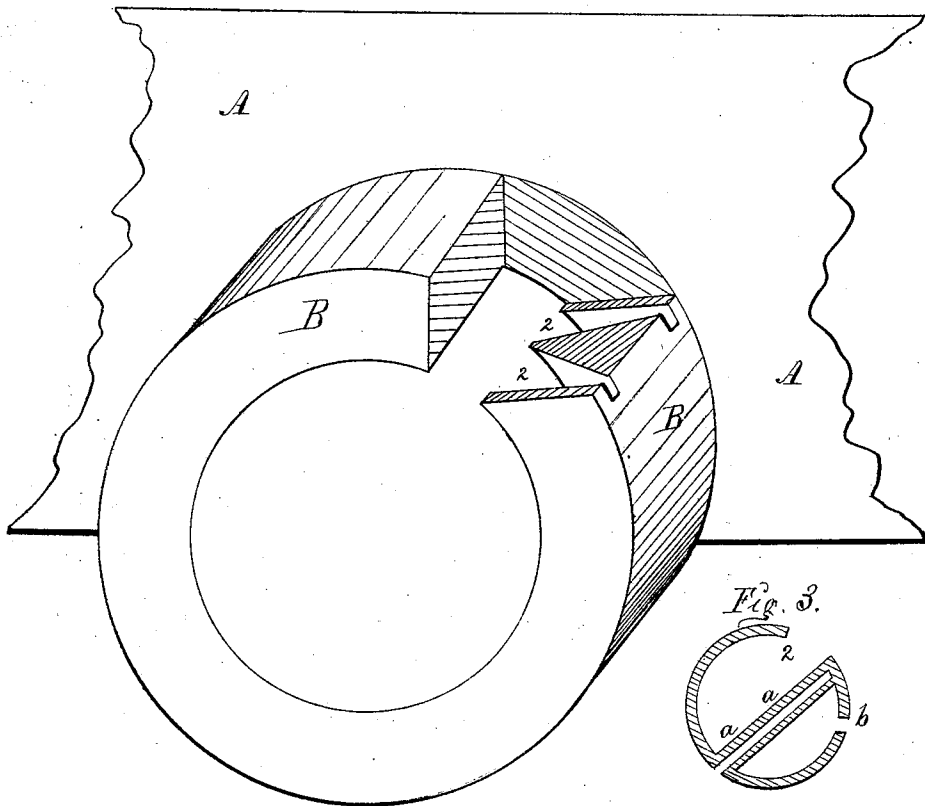
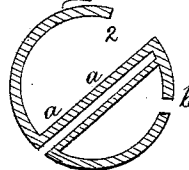


Fig. 3.



Witnesses.

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UNITED STATES PATENT OFFICE.

ALONZO RAWSON, OF DES MOINES, IOWA.

IMPROVEMENT IN GRATE-BARS FOR FURNACES.

Specification forming part of Letters Patent No. 127,428, dated June 4, 1872.

SPECIFICATION.

Specification describing certain Improvements in Grate-Bars for Furnaces, invented by ALONZO RAWSON, of Des Moines, in the county of Polk and State of Iowa.

The object of my invention is to cast grate-bars for furnaces complete in one piece, in such a manner that they can be placed together to form a grate that will distribute artificial currents of cold or hot air. It consists in forming and connecting air-distributing chambers with the bars, as hereinafter fully set forth.

Figure 1 of my drawing is a miniature perspective view of one of my grate-bars with an air-distributing chamber connected. A A represents a bar of common form. B B is a hollow chamber in the under part of the bar, and extends laterally on each side of the bar. The size and shape and position of this chamber may vary as desired. 2 2 are slots in the upper side of the chamber and in the lateral extensions. These openings 2 2 may vary in form and number and position.

Fig. 2 is a sectional view, partly in perspective, showing a full-sized bar, and illustrating the manner of forming the openings 2 2 to give direction to the air passing through them. The inner walls of the openings are made angling, as represented, for the purpose of directing the air outward and upward against the sides of the bars.

Fig. 3 is a cross-section view of the air-chamber B B, showing a hollow division that may be cast in when desired. *a a* is the division. It may be solid or hollow. *b* is an opening that may vary in size and form. By the use of this means a blast of cold air may be blown out horizontally from the opening *b* to keep the bars cool, while at the same time cold or hot air may be conducted to the fire through the upper part of the divided chamber.

I am aware that a grate has been formed by joining the T-ends of the bars in such a manner as to produce a continuous air-chamber or reservoir at the rear end of the grate. I claim, however, that my manner of forming

separate chambers for each bar, or a continuous chamber through and across the center or front part of the grate, with distributing apertures in the chambers (or continuous chamber) between the bars, is a new and useful improvement.

To conduct heated air I convey an artificial current from a common fan through a common pipe inside of the furnace-walls, where it becomes heated, to the long chamber formed by joining my separate bars. To conduct an artificial current of cold air between and against the sides of the bars at the same time when hot air is conducted to the fire I use the divided chamber, as represented in Fig. 3, and connect the hot-air pipe with the upper division, and a cold-air pipe with the lower division. To form a closed chamber between each pair of bars I cast a vertical partition in my chamber B B, or closed end, so that when it is joined to another bar, a closed chamber will be produced; or both ends of the chamber B B may be closed by any common means. When closed chambers are thus formed for each bar or pair of bars a blast may be introduced from front or rear or in any known way. Any common joint may be used in connecting my chambers and grates to aid in holding them in their proper positions. A common slide or register may be connected for letting air or ashes and cinder escape from the end or under side of the air-distributing chamber or chambers.

Claims.

I claim as my invention—

1. The grate-bar A A with the air-chamber B B and openings 2 2, substantially as described, and for the purposes specified.

2. In the air-chamber B B, the partition *a a* and the opening *b*, substantially as described, for the purposes specified.

ALONZO RAWSON.

Witnesses:

F. W. CORLISS,
L. A. CRANE.