F. VAN PATTEN & G. W. PERRY.

Grate-Bar.

No. 222,165. Patented Dec. 2, 1879.

Fig. 1.

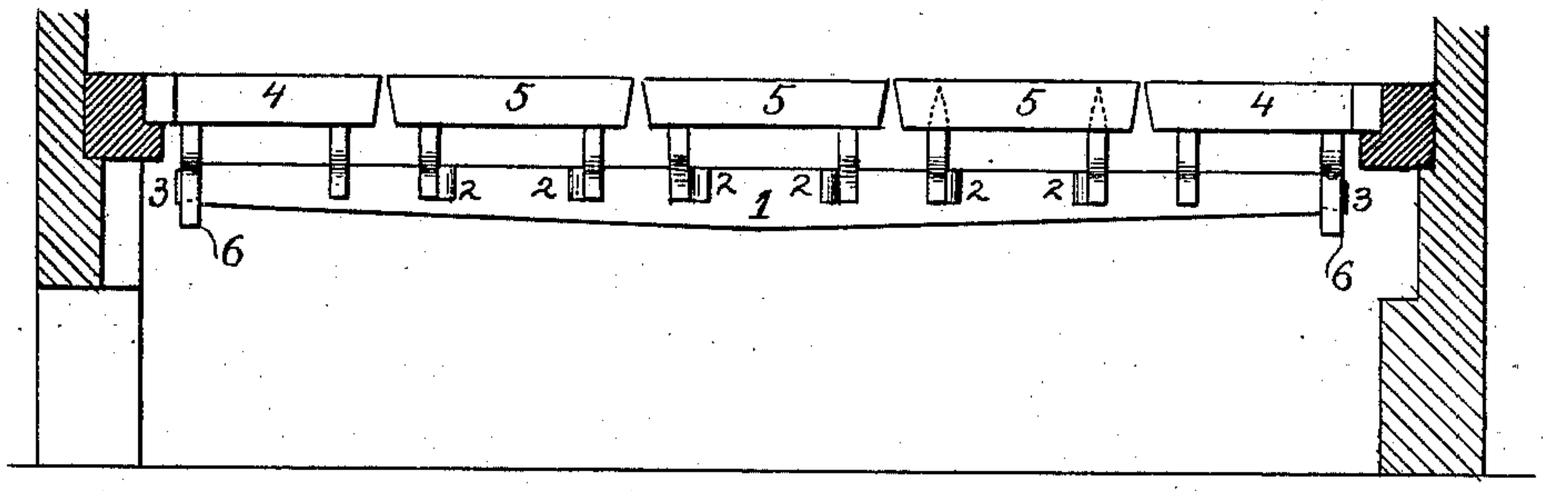


Fig. 2.

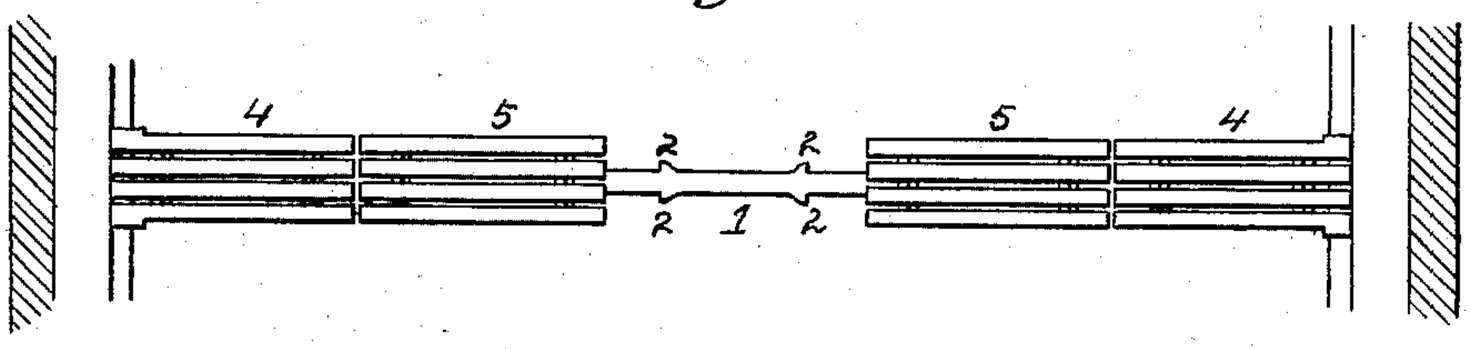


Fig 4

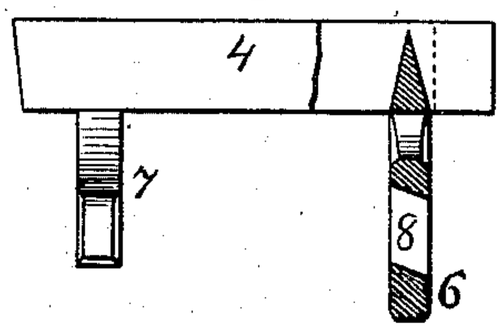


Fig. 3.

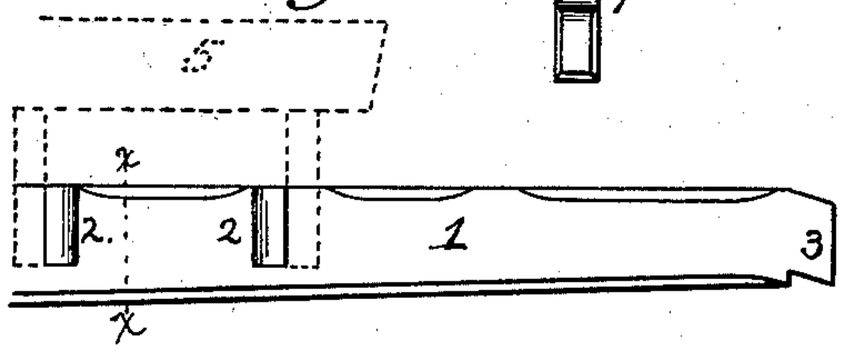


Fig. 5.

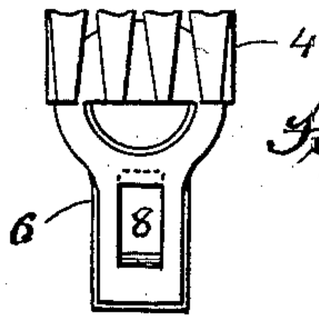


Fig. 6.

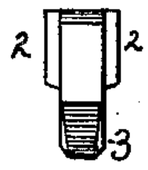


Fig. 7.

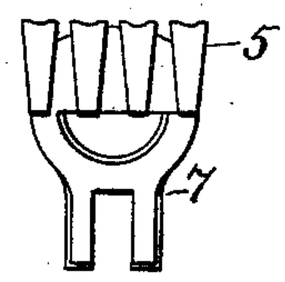
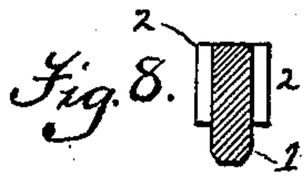


Fig. 8.



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UNITED STATES PATENT OFFICE.

FREDERICK VAN PATTEN AND GEORGE W. PERRY, OF AUBURN, NEW YORK.

IMPROVEMENT IN GRATE-BARS.

Specification forming part of Letters Patent No. **222,165**, dated December 2, 1879; application filed July 17, 1879.

To all whom it may concern:

Be it known that we, FREDERICK VAN PATTEN and GEORGE W. PERRY, of the city of Auburn, county of Cayuga, and State of New York, have invented certain new and useful Improvements in Grate-Bars; and we do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a side elevation of our grate-bar, showing its position in the furnace when in use. Fig. 2 is a plan view of the same, one of the fuel-supports being removed to show the retaining-lugs on the side of the bearing-bar. Fig. 3 is a side elevation of one end of the bearing-bar, with one of the intermediate fuel-supports, in dotted lines, in position. Fig. 4 is a side elevation, partly in section, of one of the end fuel-supports. Fig. 5 is an end view of the same. Fig. 6 is a view of one end of the bearing-bar. Fig. 7 is an end view of one of the intermediate fuel-supports. Fig. 8 is a section of the bearing-bar on line *x x*, Fig. 3.

The object of our invention is to produce a grate-bar composed, essentially, of a bearing-bar and removable fuel-bearings less liable to be destroyed by heat or use than those employed prior to our invention; and it consists in such grate-bar and the peculiar construction and combination of the parts composing it, as will be hereinafter fully described and claimed.

In the drawings, 1 is a bearing-bar, provided with a series of lugs, 2, two on each side of said bar, for each intermediate fuel-bearing, for a purpose to be explained, said bar being preferably made of cast-iron. This bar 1 is provided with hook-shaped ends 3, for a purpose to be explained.

4 are end removable fuel-supports, and 5 intermediate removable fuel-supports, preferably made of cast-iron. Each of the end fuel-supports 4 is provided with standards 6 and 7, forming intimate parts with the same. Each standard 6 has a perforation, 8, the upper and lower walls of which are inclined to receive and retain the hook-shaped ends 3 of the bearing-bar 1. Each standard 7 is slotted to straddle and rest upon the bearing-bar 1.

Each of the intermediate fuel-supports 5 is provided with standards 7, two in number, also slotted to straddle and rest upon the bearing-bar 1, the two standards being a sufficient distance apart to permit the set of two lugs 2 on each side of the bar 1 to be just inside of said standards and retain the same in position on the bar 1.

The fuel-supports 4 and 5 are slotted, as shown in the drawings, and an opening is made beneath them in each standard to allow a free circulation of air, and thus prevent their rapid destruction by heat and the conveyance of much heat by conduction to the bearing-bar 1.

The hook-shaped ends 3 of the bearing-bar 1 are inserted in the perforations 8 of the end fuel-bearings 4, and the standards 7 of the latter straddle and rest upon said bar in use, the outer ends of said fuel-bearings 4 resting upon suitable ledges built in the walls of the furnace, as shown in Figs. 1 and 2 of the drawings. The intermediate fuel-bearings 5 have their slotted standards 7 straddling and resting upon the bearing-bar 1 and over their respective lugs 2 on said bar. The bearing-bar 1 is thus hung so low down in the furnace that it is not liable to become warped or burned by the heat. The slotted fuel-bearings and standards provided with openings allow a free circulation of air, heat up the heat-currents, and thus prevent their rapid destruction and the transmission of heat to the bearing-bar.

The fuel-supports can expand and contract without any strain upon themselves and the bearing-bar, and the latter is also free to expand and contract without danger of warping or twisting.

When one of the fuel-bearings becomes worn out or burned, it can be readily removed and a new one substituted at small expense.

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

1. The combination, in a grate-bar, of a bearing-bar and end fuel-supports, which also support said bar, arranged, substantially as shown, below them, substantially as described.

2. Fuel-bearings slotted and provided with

standards having openings, substantially as described.

3. End fuel-bearings provided with standards, one of which is slotted to straddle and rest upon the bearing-bar 1, and the other with a perforation to receive the hook-shaped end of said bar, substantially as described.

4. Intermediate fuel-bearings slotted substantially as shown, and provided with standards having openings, substantially as shown, and slotted to straddle and rest upon the bearing-bar 1, substantially as described.

5. The combination, with the bearing-bar provided with lugs 2, of intermediate fuel-supports having standards slotted substantially as shown, to straddle and rest upon said bar over their respective sets of lugs, substantially as described.

6. A grate-bar composed, essentially, of end and intermediate fuel-supports, and a bearing-bar supported by said end fuel-supports, substantially as described.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

FREDERICK VAN PATTEN.
GEORGE W. PERRY.

Witnesses:
HORACE T. COOK,
JNO. H. CARR.