

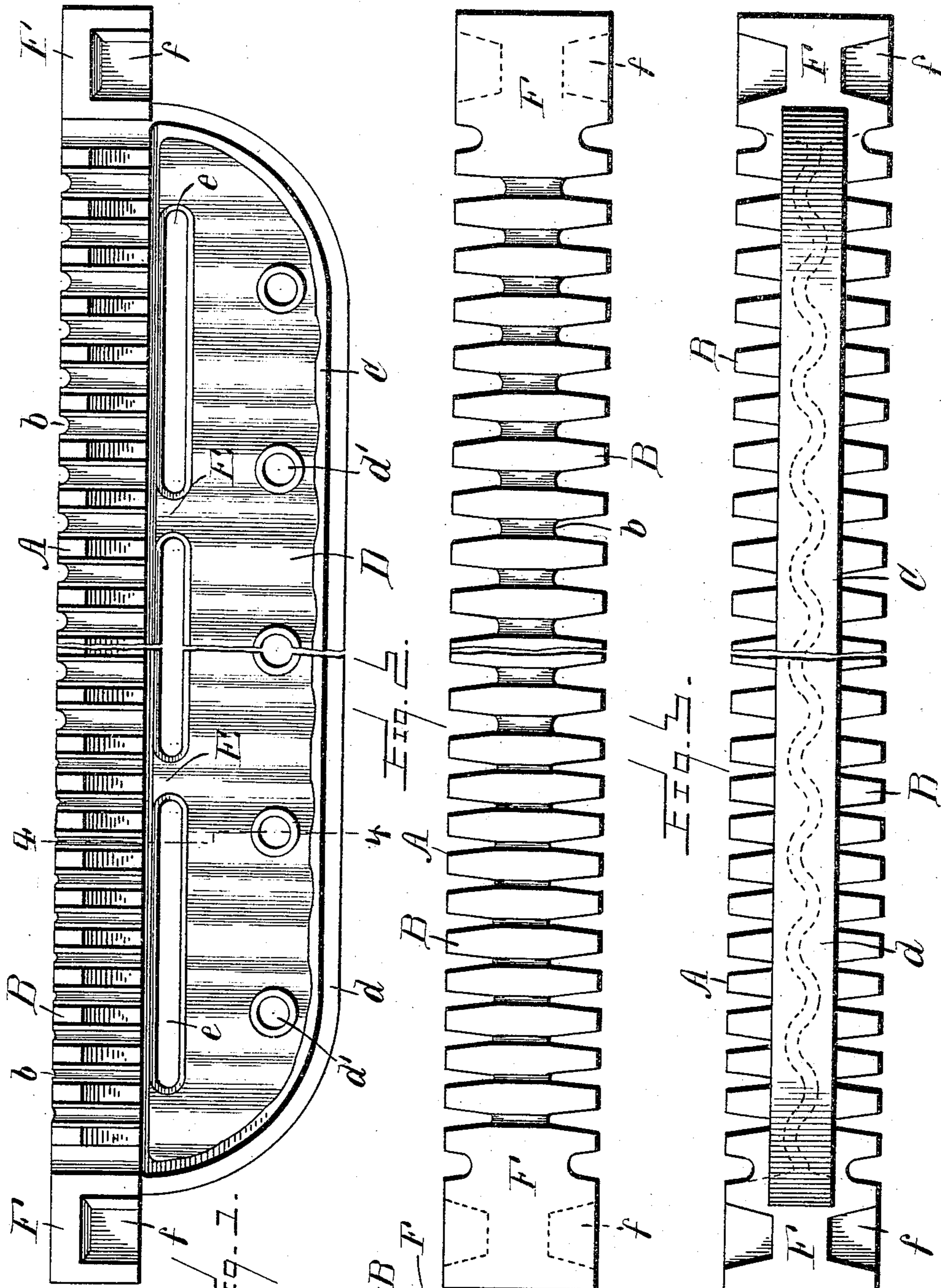
No. 773,253.

PATENTED OCT. 25, 1904.

J. W. GLOVER.
GRATE BAR.

APPLICATION FILED JUNE 2, 1904.

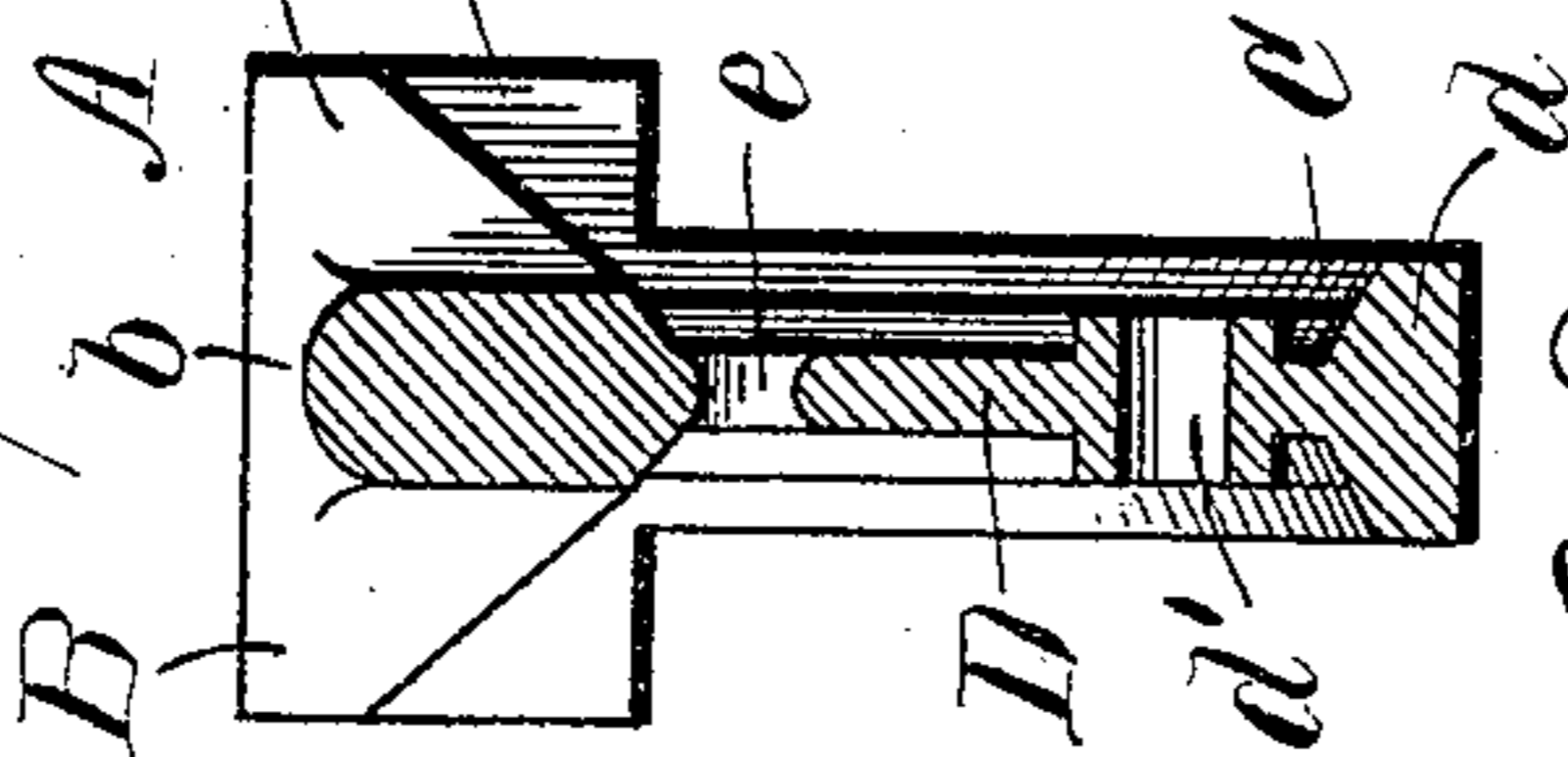
NO MODEL.



WITNESSES:

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UNITED STATES PATENT OFFICE.

JOHN W. GLOVER, OF MARIETTA, GEORGIA.

GRATE-BAR.

SPECIFICATION forming part of Letters Patent No. 773,253, dated October 25, 1904.

Application filed June 2, 1904. Serial No. 210,878. (No model.)

To all whom it may concern:

Be it known that I, JOHN W. GLOVER, of Marietta, in the county of Cobb and State of Georgia, have invented certain new and useful Improvements in Grate-Bars; and I hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, which form part of this specification.

10 This invention is an improved grate-bar for stoves and furnaces, especially adapted for use in burning soft or bituminous coal, also sawdust, slack coal, wood, and other fuels. The bar is so formed that it will not become unduly heated by the fire, will be less liable to warp, and will be more efficient and durable than the various forms of grate-bars in present use and can be made in extra long lengths, such extra long bars retaining their form and usefulness where other kinds of bars would be worthless. The bar is cast in one piece, but is practically composed of an upper grate or fuel supporting portion and an underlying bracing or stiffening web portion 20 cast integral with the grate portion, but separated therefrom, so as to reduce heat conduction, by large air slots or spaces. The lower part of the bar is made quite heavy, so that more metal is at the lower edge of the bracing web portion of the bar than at the upper edge thereof. This excess of metal is preferably obtained by making lateral flanges on the lower edges of the bar, so that this lower portion is roughly inverted-T-shaped in cross-section. 35 This lower web portion is also preferably corrugated or undulated, the corrugations or undulations extending vertically therethrough and serving both to stiffen the web and to provide for expansion and contraction of the metal without causing distortion or warping of the bar. The lower half never becomes hot enough to sag or warp, and the bar is thereby kept in perfect shape, and the openings between the bars remain uniform, preventing waste of fuel and insuring a more uniform and even combustion of the coal and less formation of clinker.

The invention therefore consists in the novel

construction of the bar hereinafter described and as illustrated in the drawings, in which— 50

Figure 1 is a side view of the bar, partly broken away to shorten it. Fig. 2 is a top view of the bar shown in Fig. 1. Fig. 3 is a bottom view of the bar shown in Fig. 1; and Fig. 4 is a section on line 4 4, Fig. 1. 55

The top member A of the grate-bar is provided on each side with a series of laterally-projecting parallel lugs B, which are approximately triangular in form, (looking at the cross-section of the bar,) and the top of the member is provided with shallow grooves *b* intermediate the pairs of lugs to facilitate the passage of air to the fuel. These lugs B support the fuel, and I preferably make the lugs nearest the front end of the bars closer together than the others, as indicated in the drawings. The remaining lugs may be spaced farther apart, the spacing depending upon the length of the bars and the character of the fuel to be used. For fine fuel, such as slack or sawdust, the lugs should be close together, and the adjacent bars can be arranged so close together that their lugs almost touch to prevent the fuel sifting therebetween, and owing to the non-sagging and non-warping structure of the bar grates made therefrom are particularly well adapted for burning such fine fuels. 65 70 75

Extending beneath the top member A is the lower bracing member C, which is approximately like an inverted truss and has a web portion D, provided with a heavy laterally-projecting flange or flanges *d* on its lower edge and ends, said flange merging into the end-supporting portions of the bar. In order to strengthen the web and allow for expansion and contraction thereof without warping, it is corrugated, the corrugations or undulations extending vertically thereof, as shown. Further, the web may be perforated at intervals adjacent to the flange *d*, as shown at *d'*, these holes *d'* being preferably surrounded by flanges on both sides of the web, as shown in the drawings. 80 85 90

The members A C are connected at intervals by small tongues E, which are separated by 95

air spaces or slots *e*, which prevent conduction of heat and allow free circulation of air between the members A C. The number of tongues and air-slots will vary with the size and length of the bar; but slots about six inches long and tongues about one inch long are effective.

The end portions F of the bar are shaped to engage the grate-supports. As shown, they are approximately square in general outline and provided with lateral recesses *f* to reduce the contact-surface with the support, so that it will be easier to set the bar evenly thereon.

It should be noted that my bars are so formed that there is practically air circulation around the entire upper member, and air is well distributed thereby to the fuel. Air can also circulate practically entirely around the lower member. This lower member is of greatest thickness at bottom or points most remote from the fire, so that the small amount of heat passing by conduction through the tongues E is disseminated over a much greater mass of metal and the corrugation of the web and the bottom flanges preserved and insure the rigidity and stiffness of the bar.

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

1. A grate-bar comprising an upper member having similar laterally-projecting lugs on its opposite sides, separated by air-passages, and a vertically-corrugated lower member cast integral with the upper member but separated at top from the body thereof by horizontally-elongated air-spaces and having a laterally-projecting stiffening-flange on its lower or outer edge, substantially as described.

2. The herein-described grate-bar comprising an upper member having similar laterally-

projecting lugs on its opposite sides, and a lower member cast integral with the upper member and having a heavy laterally-projecting stiffening-flange on its lower or outer edge, said lower member being connected to the upper member by small tongues leaving horizontally-elongated air-spaces between the members, substantially as described.

3. A grate-bar comprising an upper member having laterally-projecting lugs on each side and grooves in its top intermediate the lugs; and a lower member having a stiffening-flange on its lower edge and perforated near said flange, said lower member being cast integral with the upper member, and connected thereto at intervals by small tongues leaving horizontally-elongated air-spaces between the members, substantially as described.

4. A grate-bar comprising an upper member having a series of laterally-projecting lugs on each side, and grooves intermediate the lugs, and supporting portions at its ends, a lower vertically-corrugated supporting member cast integral with the upper member and connected therewith at intervals by small tongues separated by air-spaces, elongated horizontally between the members and a laterally-projecting stiffening-flange on the lower edge and ends of the lower member, said flange extending up to and merging into the end portions, all substantially as and for the purpose described.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

JOHN W. GLOVER.

Witnesses:

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