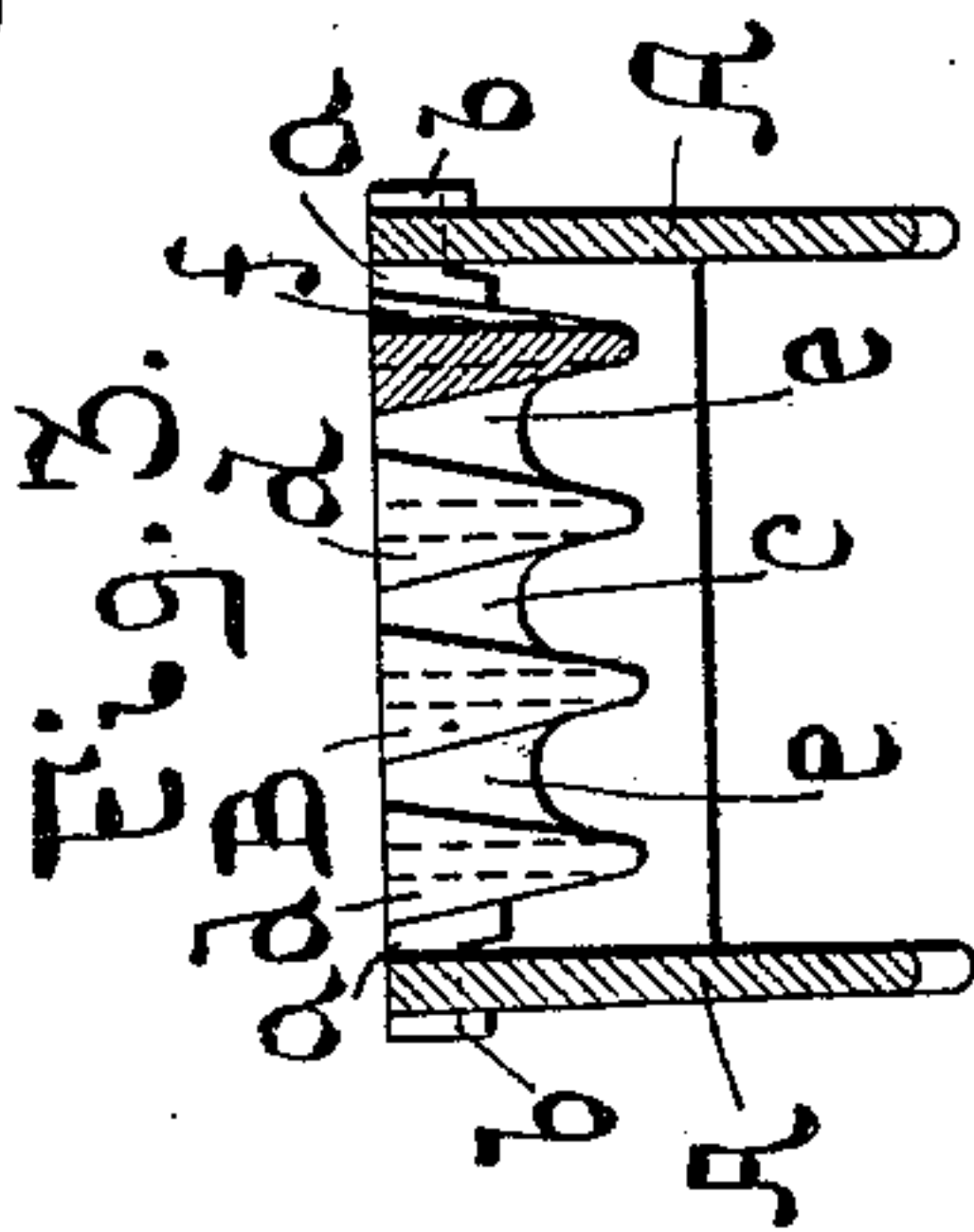
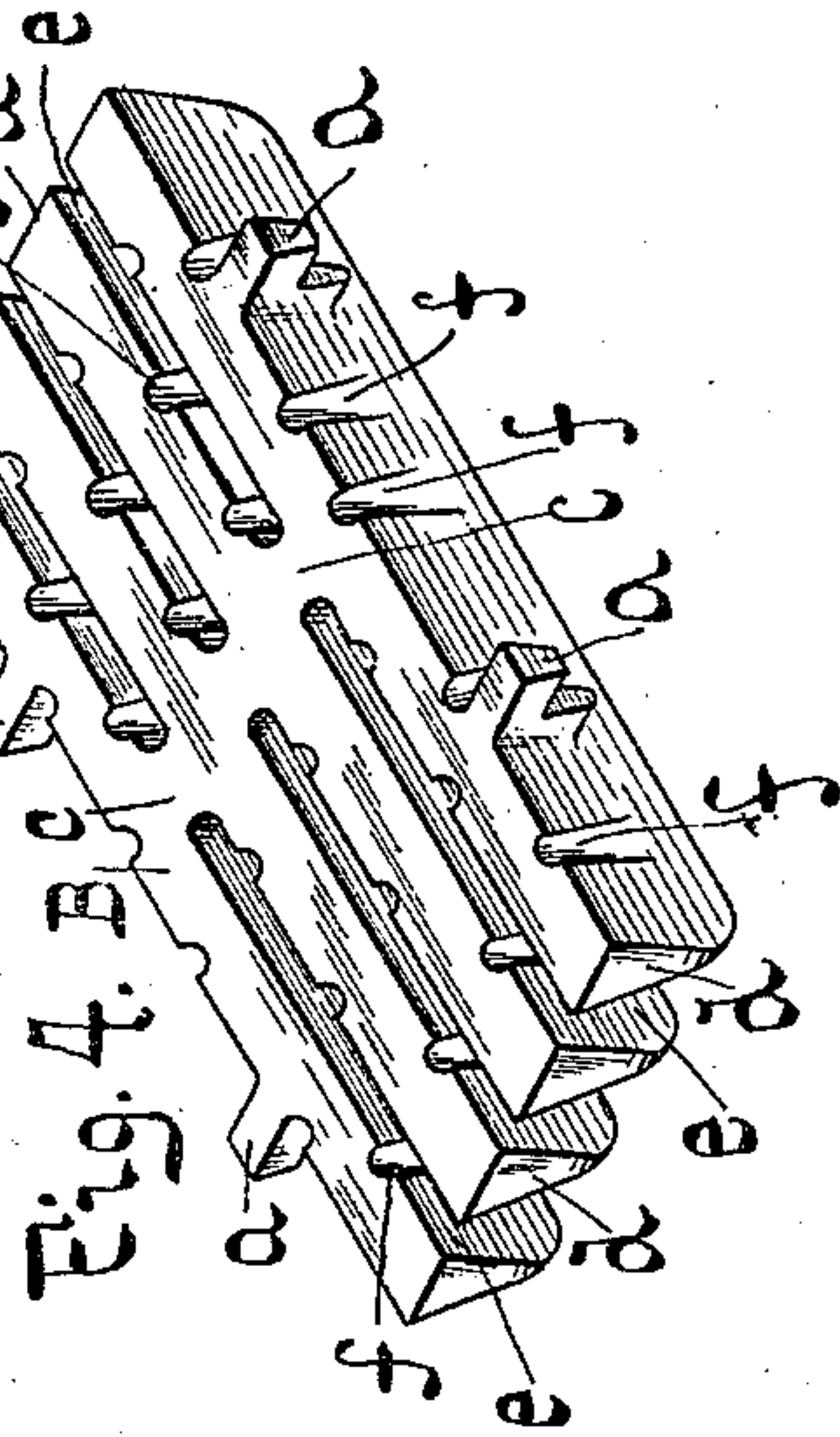
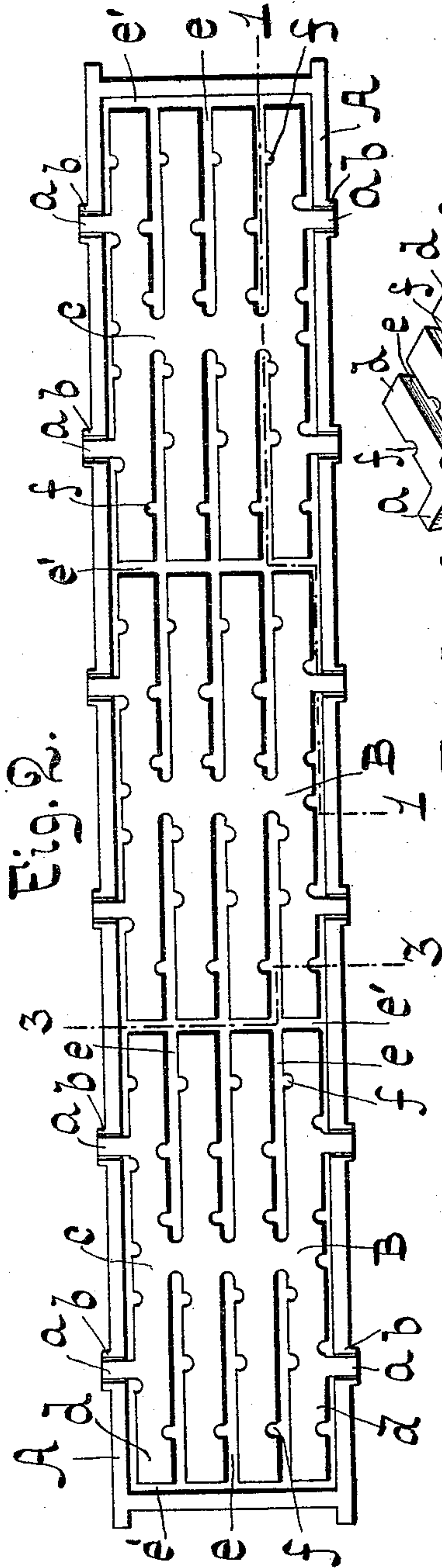
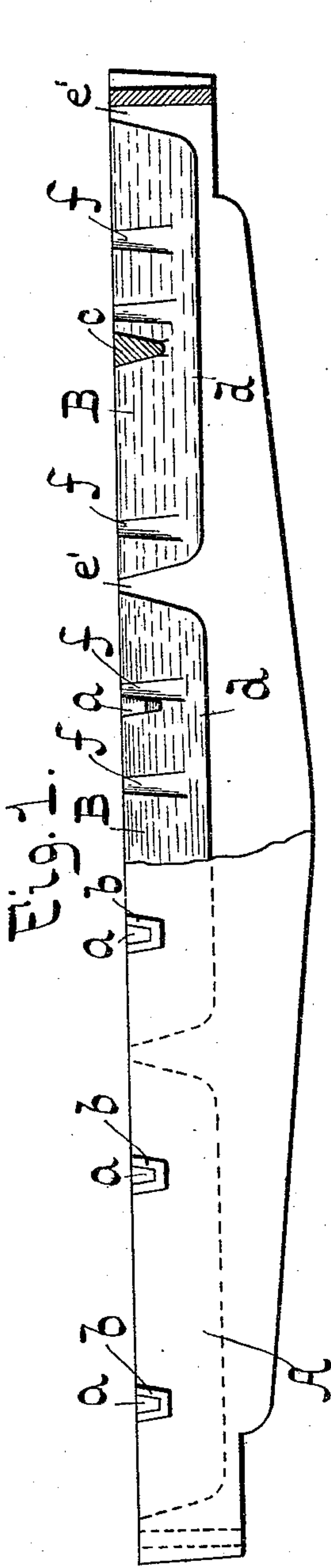


(No Model.)

C. T. COE.
FURNACE GRATE.

No. 543,589.

Patented July 30, 1895.



WITNESSES:
Chas. W. Thomas
A. Faber du Faur

INVENTOR:
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UNITED STATES PATENT OFFICE.

CHARLES T. COE, OF NEW YORK, N. Y.

FURNACE-GRATE.

SPECIFICATION forming part of Letters Patent No. 543,589, dated July 30, 1895.

Application filed August 30, 1894. Serial No. 521,704. (No model.)

To all whom it may concern:

Be it known that I, CHARLES T. COE, a citizen of the United States of America, and a resident of New York, in the county and State of New York, have invented certain new and useful Improvements in Furnace-Grates, of which the following is a specification.

My invention relates to furnace grates, and has for its object to provide a grate adapted to burn equally well and uniformly all grades and sizes of coal without loss of fuel through the air-passages when burning smaller sizes—such as buckwheat, culm, and screenings—said grate also being constructed with a view to durability and freedom from warping, as well as the easy interchange of parts when burned out.

With this object in view my invention consists essentially in a grate-bar composed of a supporting-frame provided with sockets and grate-sections consisting of transverse ribs, spaced arms extending transversely therefrom, and lugs extending laterally from the outside arms and adapted to be received by the sockets in the frame for the support of said section.

The nature of my said invention will best be understood when described in connection with the annexed sheet of drawings, in which—

Figure 1 represents a sectional elevation of a grate-bar embodying my invention, the section being taken on the line 1 1, Fig. 2. Fig. 2 is a top view thereof. Fig. 3 is a vertical section on the line 3 3, Fig. 2. Fig. 4 is a perspective view of a grate-bar section.

Similar letters of reference designate corresponding parts through the several views of the drawings.

Referring to the drawings, the latter A designates a rectangular frame of cast iron having substantially parallel sides and ends, and adapted, as usual, to be supported at opposite ends by bearers located in the furnace. In this frame is located a number of removable grate-bar sections B, each provided with four or more lugs *a* for supporting the same in the frame A, which latter is for this purpose provided with suitable sockets *b*, receiving the lugs *a*. Play is permitted between the frame and lugs to allow for expansion.

Each section is composed of a central rib *c* and parallel arms *d* projecting at right-angles

from said rib, and between said arms are the main transverse air-passages *e* transversely tapered, as usual.

f are auxiliary lateral air-channels formed in the arms and preferably enlarged or spread downwardly to obtain a natural flow. These channels materially increase the area for the admission of air to the grate and reduce the surface of the grate, while at the same time the increased area for admission of air does not involve any appreciable increase in loss of fuel by dropping through the grate. As further important advantages of this construction, may be set forth that there are no narrow projecting parts which interfere with the raking of the fires, and the arms of the grate are not liable to become distorted.

A set of channels *f* are placed quite close to the transverse ribs *c*, as well as to the lugs *a*; and, in general, whenever the nature of the sections requires additional area for the admission of air.

The ends and sides of the sections *a* are set apart from each other and from the frame to form air-passages *e'*.

In view of the sectional character of the grate-bar, burned-out sections can be removed and replaced with little trouble and at much less expense than by replacing an entire bar.

By the use of the lateral channels, judiciously located, the fuel is uniformly burned.

For dumping-grates the grate-bar and sections may be made integral, or the sections are so secured that they cannot become displaced when the grate is dumped.

What I claim as new is—

The combination with a supporting frame provided with sockets, of grate sections consisting of transverse ribs, spaced arms extending transversely therefrom, and lugs *a* extending laterally from the outside arms and adapted to be received by the sockets in the frame for the support of said sections, substantially as described.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 24th day of August, 1894.

CHAS. T. COE.

Witnesses:

A. FABER DU FAUR, Jr.,
CHAS. W. THOMAS.