

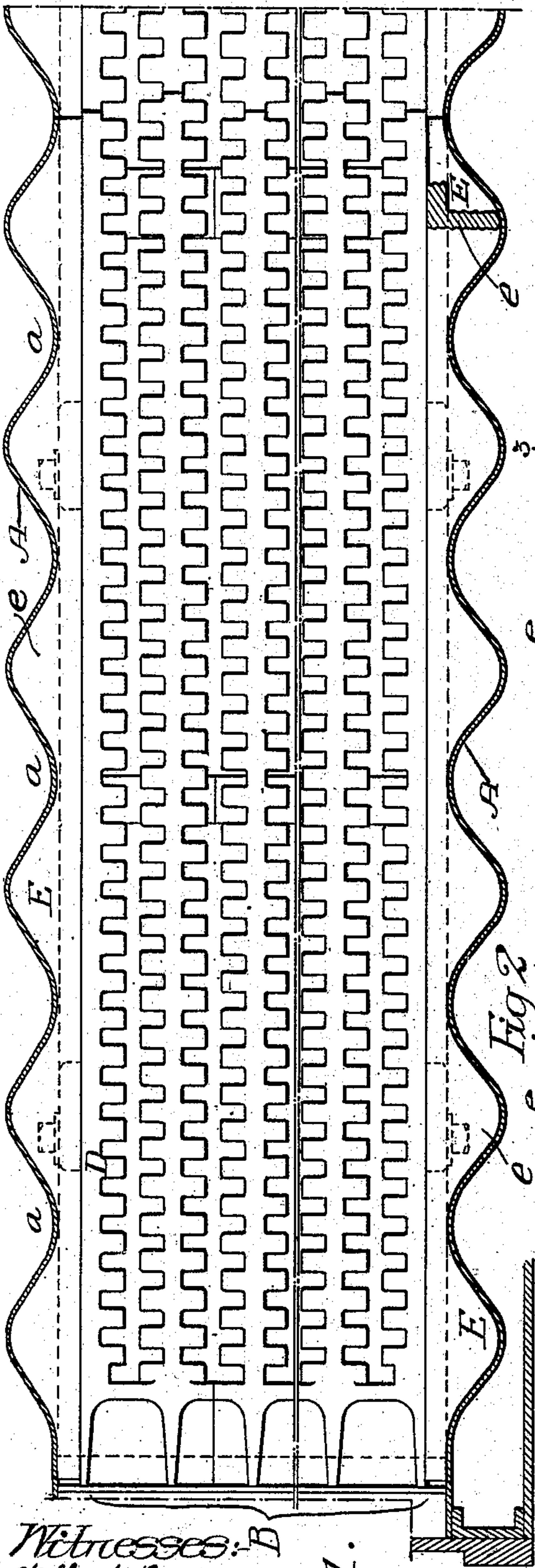
J. BARKER.
GRATE.

APPLICATION FILED APR. 29, 1907.

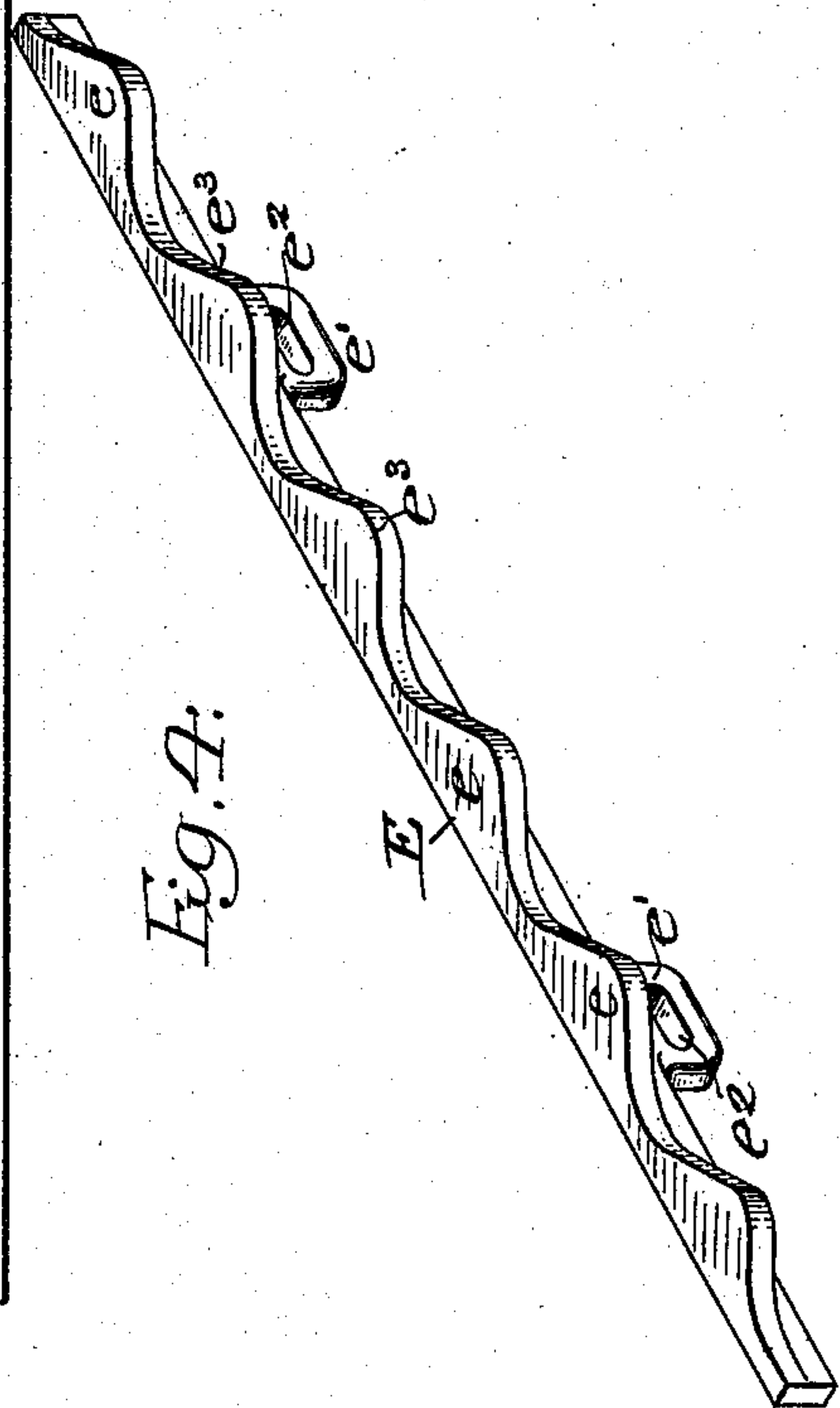
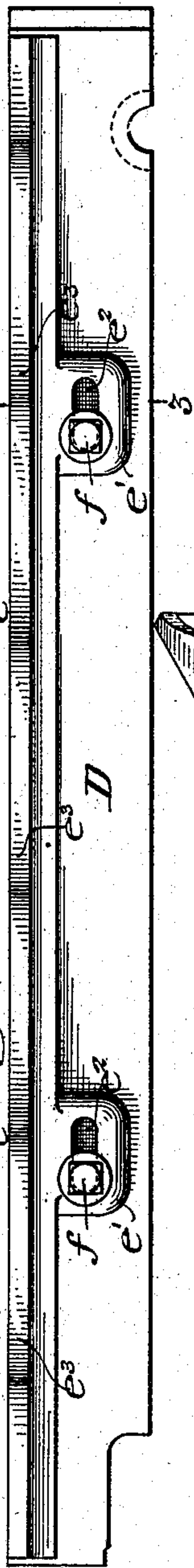
899,372.

Patented Sept. 22, 1908.

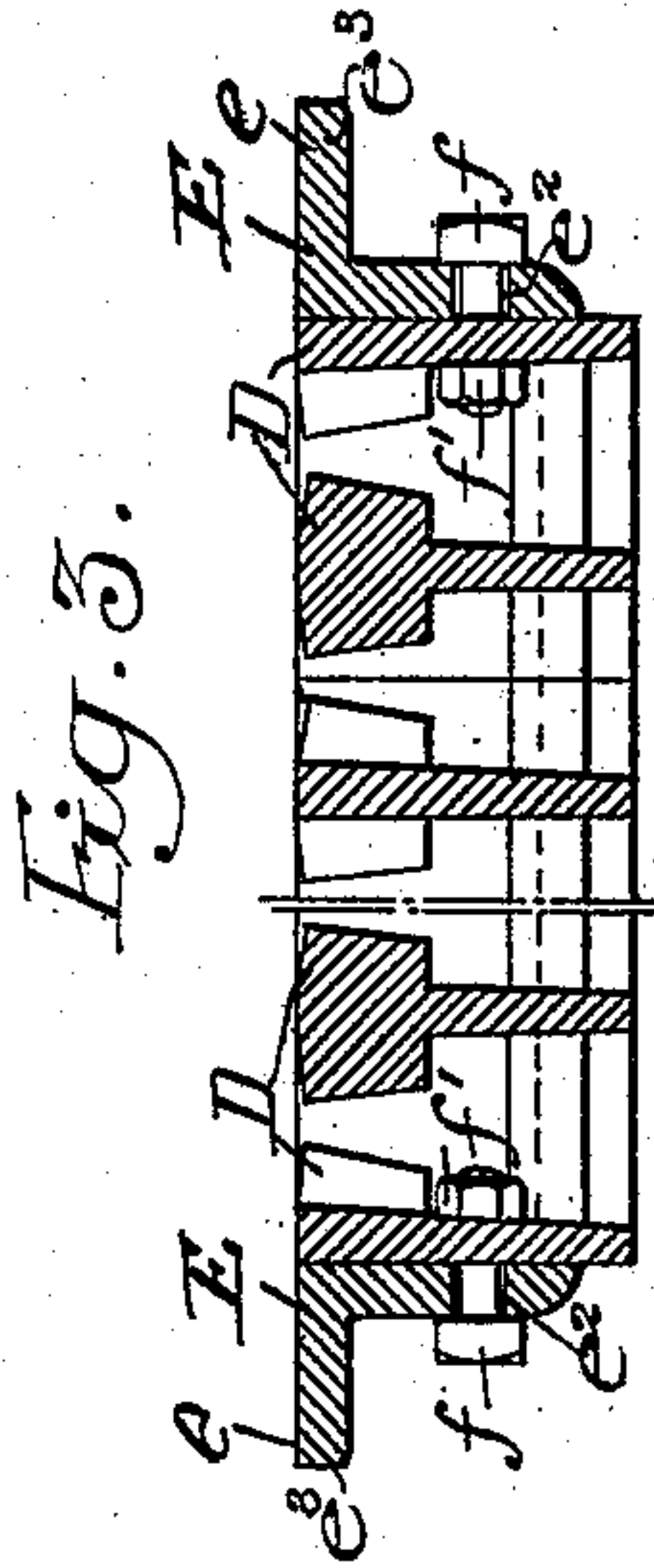
2 SHEETS—SHEET 1.



Witnesses:
Wills A. Burrows
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Fig. 1.



Inventor:
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2 SHEETS—SHEET 2.

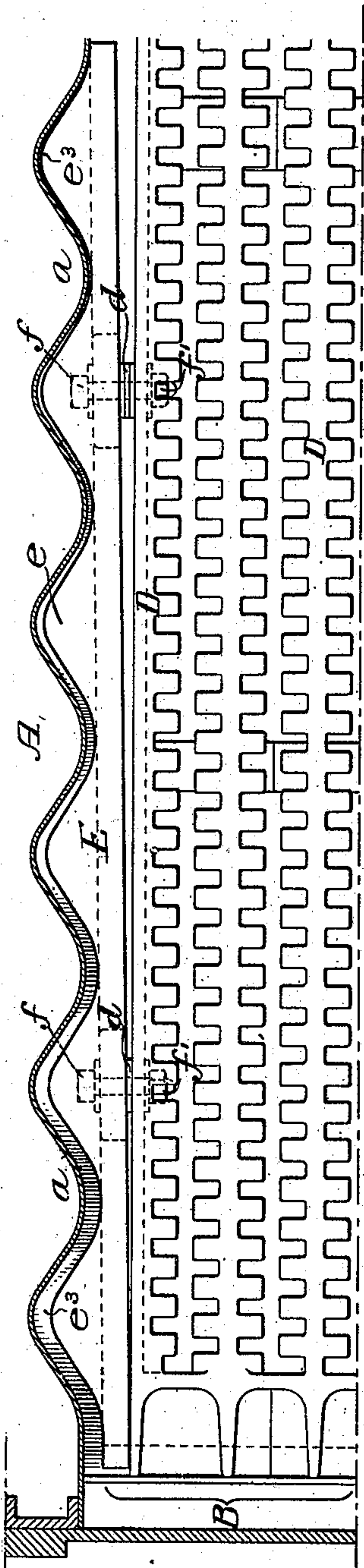
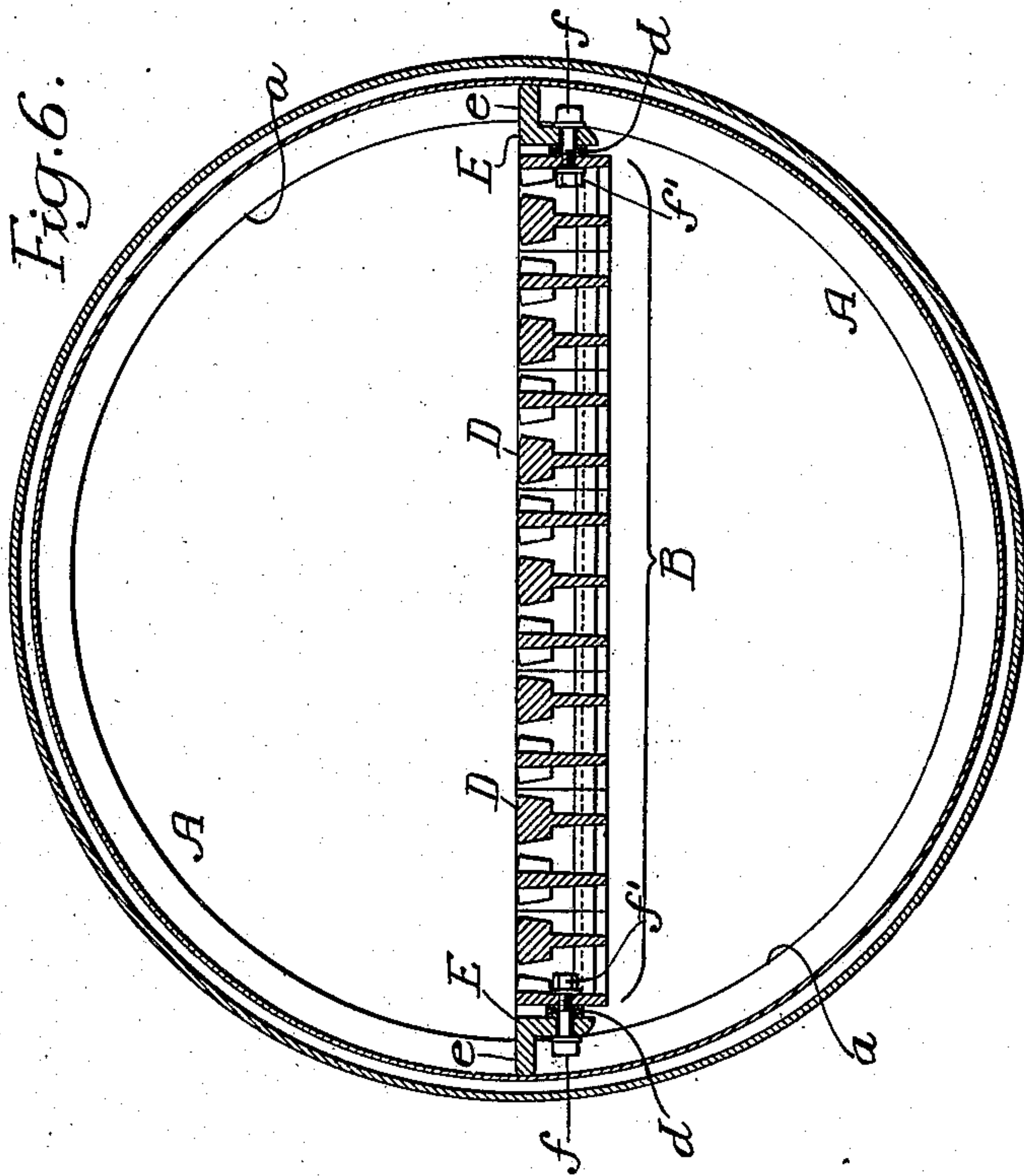


Fig. 5.

Fig. 6.



Witnesses:
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UNITED STATES PATENT OFFICE.

JAMES BARKER, OF PHILADELPHIA, PENNSYLVANIA.

GRATE.

No. 899,372.

Specification of Letters Patent.

Patented Sept. 22, 1908.

Application filed April 29, 1907. Serial No. 370,781.

To all whom it may concern:

Be it known that I, JAMES BARKER, a citizen of the United States, residing in Philadelphia, Pennsylvania, have invented certain Improvements in Grates, of which the following is a specification.

My invention relates to certain improvements in grates for furnaces having corrugated fire-boxes. The great trouble in applying grate bars to this type of fire-box is due to the fact that each set of bars has to be separately fitted to the fire-box, because in each case the grate has to be cut off or have pieces added to it in order that it may properly fit the corrugations of the side walls of the fire-box.

The object therefore of my invention is to so construct a grate that the main portions thereof can be made of the same length and be provided with adjustable side members, separate from the main portions, so that they can be adjusted longitudinally to fit the corrugated fire-box without removing or adding to the sections of the grate. This object I attain in the following manner, reference being had to the accompanying drawings, in which:

Figure 1, is a plan view of sufficient of a grate to illustrate my invention and showing in section a portion of the corrugated fire-box; Fig. 2, is a side view of the grate; Fig. 3, is a sectional view on the line 3—3, Fig. 2; Fig. 4, is a perspective view of one of the side sections of the grate bar; Fig. 5, is a view of a modification of my invention, and Fig. 6, is a cross sectional view showing the grate in place in a corrugated fire-box.

A is the side wall of a fire-box made of corrugated sheet metal.

B is the grate which is mounted between the two side walls of the fire-box and which must accurately fit the corrugations of said side walls in order to produce the best results. The grate is made up of a series of bars D arranged side by side, as shown in Fig. 1, and side sections E—E flat on one side and corrugated on the other to fit the corrugations on the side wall of the fire-box. The particular form of the openings in the grates may be varied according to the design of grate required and the fuel employed.

The side sections E—E of the grate are made in the form illustrated in Fig. 4, having a surface portion *e* alining with the top surface of the grate sections D and being also provided with depending lugs *e'*; there being

two of these shown in the present instance, though there may be as many of them as desired. These lugs have longitudinal slots *e*², through which pass bolts *f* having nuts *f'* 60 firmly securing the side sections E to the side grate bars D. It will be noticed on referring to the drawings that the lugs are arranged opposite the projecting portions of the undulated edge of the side sections so that 65 there will be room for the heads of the bolts that secure the side sections to the grate bars.

By slotting the lugs *e'* the side sections can be longitudinally adjusted, so that in the 70 event of the grate not fitting the corrugations accurately said side sections can be moved longitudinally in respect to the sections D until the undulating edge *e*³ alines with the corrugations *a* of the fire-box casing A. 75

In some instances the fire-box casing may be distorted so that the corrugations are not directly opposite each other and in this event by longitudinally adjusting each of 80 the two sections of the grate independently accuracy of fit is insured.

My invention is particularly adapted for use where a foundry supplies grates for a number of different furnaces of the same 85 type and the corrugated casings are the same with the exception that one may differ slightly from the other, owing to the fact that in assembling the parts of the fire-boxes of different boilers care is not taken to have the 90 corrugations always come at the same points. By my invention, however, the grates can be made to accurately fit the fire-boxes without removing a portion of their ends or adding 95 pieces at either end, as is the common practice at the present time. Another advantage of my invention is due to the fact that when the grates are applied to the fire-box they are generally below the center and, in some instances, they are arranged on an incline 100 either higher at the back than at the front end or vice versa: consequently the width on the grate line is greater at one place than at another.

By making the side sections separate from 105 the grate bars, I am enabled to set out said sections so that they rest snugly against the corrugated shell of the fire-box when in an inclined position, as illustrated in Fig. 5, washers *d* being placed between the side 110 plates and the grate bars as indicated in said figure. By this means I am enabled to pro-

vide a neatly fitting grate without providing a special set of grate bars for each furnace.

I claim:

- 5 1. The combination in a grate for a corrugated fire-box, of a body portion consisting of a series of bars and a side section at each side of the body portion, each side section having an undulated edge to conform to the corrugations of the fire-box, said side sections being arranged so that they can be
10 moved longitudinally in respect to the body portion of the grate, and means for securing the side sections to the body portion after adjustment, substantially as described.
- 15 2. The combination in a grate bar, of a corrugated fire-box, a series of main grate bars arranged side by side, side sections at each side of the grate, each side section having an undulating edge fitting the corruga-
20 tions of the fire-box casing and having depending lugs slotted longitudinally, and bolts passing through the slots in the lugs and secured to the side bars of the grate, substantially as described.
- 25 3. As a new article of manufacture, a side section for a grate, said side section having a body portion, one edge of the section being straight and the other edge undulated cor-

responding to the corrugations of the fire-box casing and having lugs depending from the straight edge, said lugs being slotted longitudinally, substantially as described. 30

4. The combination of grate bars, side sections attached to the grate bars, washers placed between the side sections and the grate bars, and means for attaching the side sections to the grate bars, the whole being so constructed that the side sections can be set out to conform to the width of a fire-box, substantially as described. 35 40

5. As a new article of manufacture, a side section for a grate having a body portion straight on one edge and undulated on the opposite edge and having lugs depending from the straight edge opposite from the projecting portions of the undulated edge, said lugs being slotted longitudinally, substantially as described. 45

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses. 50

JAMES BARKER.

Witnesses:

JOS. H. KLEIN,
WM. A. BARR.