No. 892,599. PATENTED JULY 7, 1908.

A. C. LIPPINCOTT.

GRATE BAR.

APPLICATION FILED SEPT. 19, 1904.

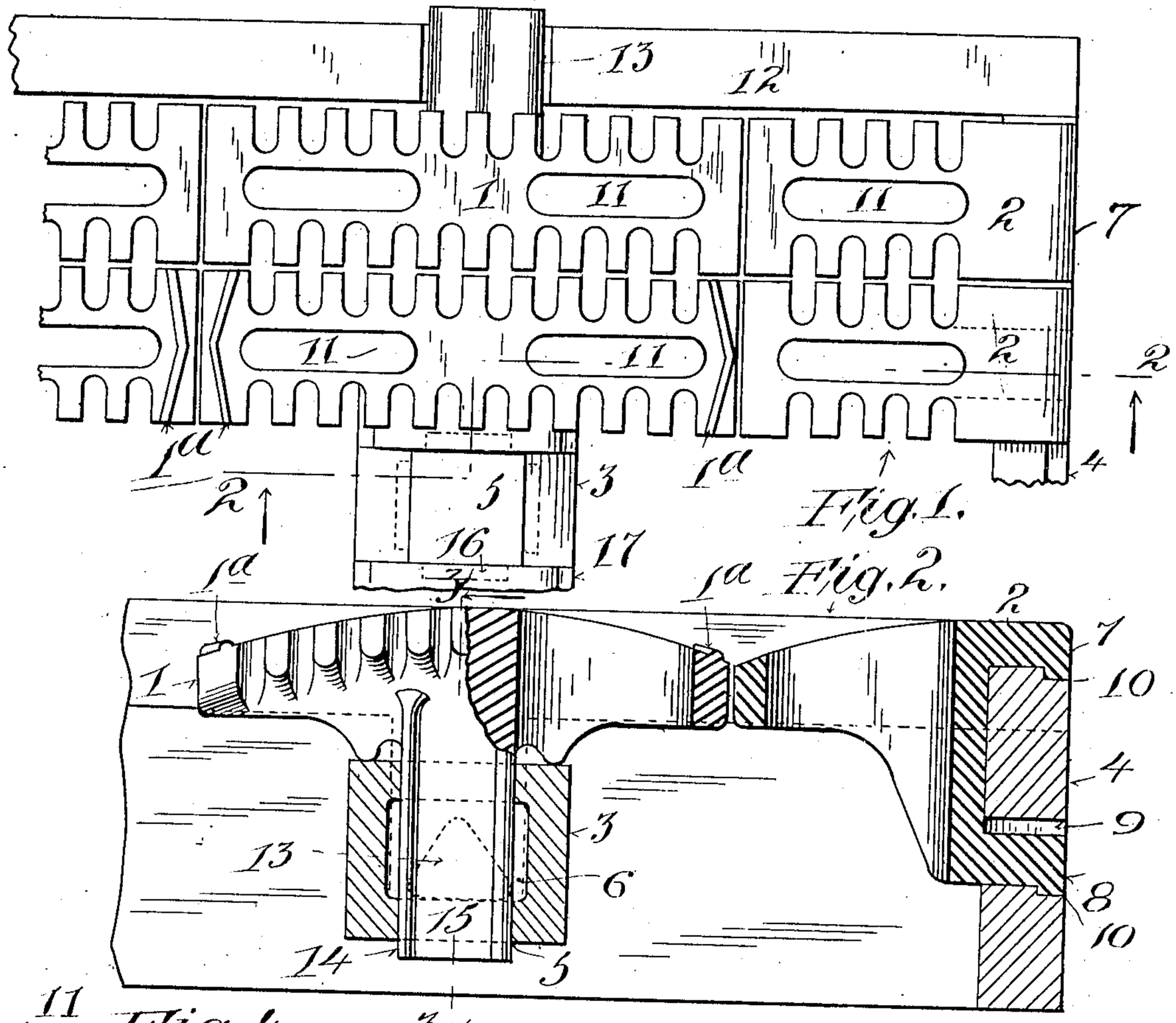

Fig. 1.

Fig. 2.

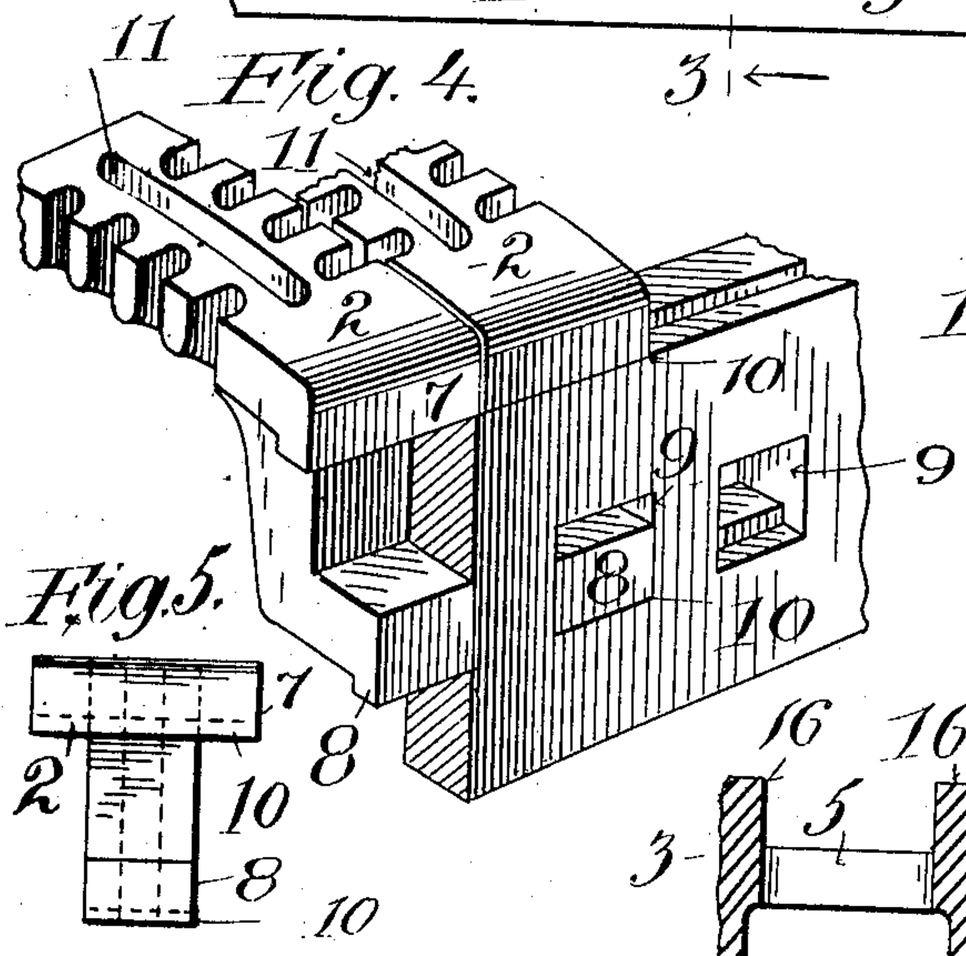

Fig. 5.

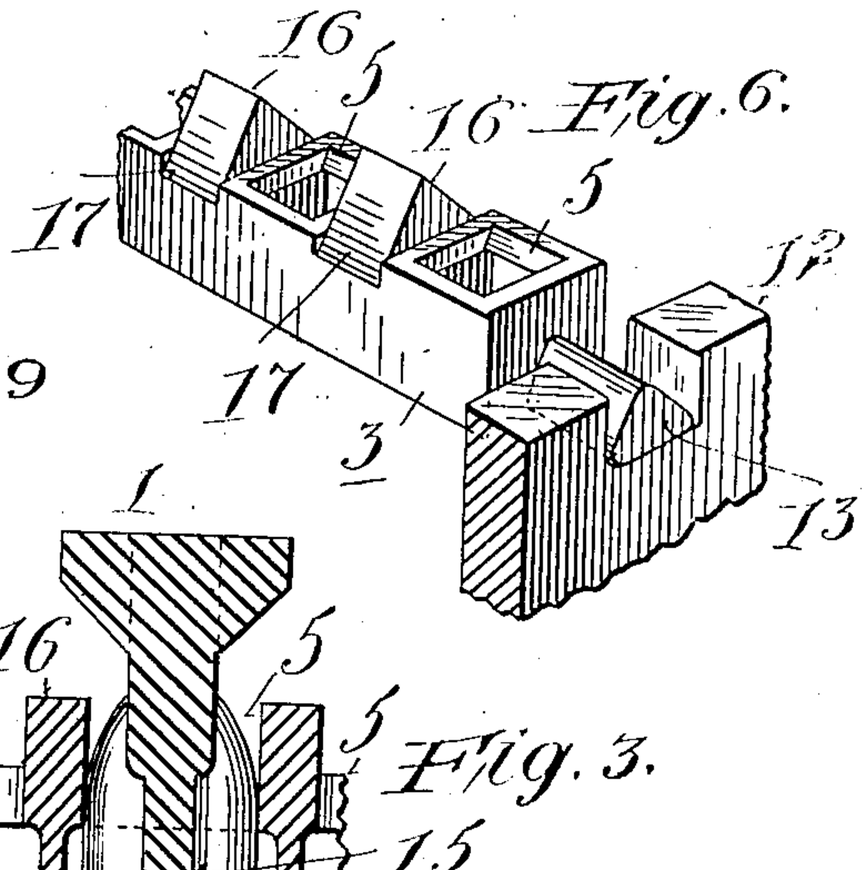

Fig. 6.

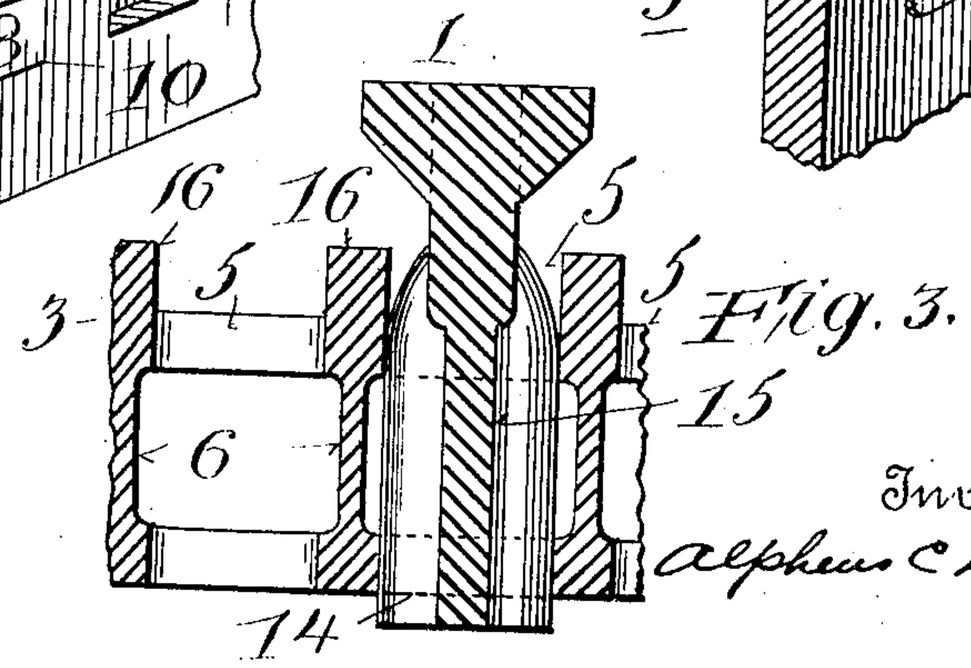

Fig. 3.

Fig. 4.

Witnesses
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UNITED STATES PATENT OFFICE.

ALPHEUS C. LIPPINCOTT, OF SCRANTON, PENNSYLVANIA.

GRATE-BAR.

No. 892,599. Specification of Letters Patent. Patented July 7, 1908.

Application filed September 19, 1904. Serial No. 225,009.

To all whom it may concern:

Be it known that I, ALPHEUS C. LIPPINCOTT, of the city of Scranton, in the county of Lackawanna and State of Pennsylvania, have invented certain new and useful Improvements in Grate-Bars; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention contemplates certain new and useful improvements in grate bars.

The primary object of the invention is to provide a replaceable grate surface, made up of small units, to facilitate cheap repairs.

A further object is to provide a construction which shall be strong and light, so as to prove durable, and at the same time inexpensive in construction.

A further object is to provide air space through the supports, so designed as to have the utmost cooling effect upon the bars, to reduce the damage from undue heating to minimum.

A further object is to provide a construction of cross bar so that ashes will be deflected therefrom and not remain at rest on the top of said cross bar.

A further object is to provide a journal bearing which will be practically free from wear and at the same time perform a lifting action at each extreme of the rocking movement, thereby assisting in the breaking up of clinkers.

A further object is to provide suitable means for agitating the underside of the fire-bed, so as to granulate this material, enabling it to pass through the small openings of the grate.

A further object is to provide an improved construction of end bar, so as to reduce to a minimum the warping to which this bar is normally subjected.

Figure —1— is a plan view of a portion of my improved grate, exhibiting a supporting bar and a portion of the frame. Fig. —2— is a vertical section on line, 2—2— of Fig. 1, exhibiting a slotted leaf bar in position, also an end wall with its accompanying toe-piece. Fig. —3— is a central section taken on line 3—3— of Fig. 2, of a single slotted leaf bar and a portion of a cross bar. Fig. —4— is a perspective view of a portion of an end wall with toe-pieces in position. Fig. —5— is an end view of a toe piece. Fig. —6— is a perspective view of a portion of a cross bar with the inclined deflectors thereon, and also the cam shaped journal and its accompanying bearing.

This invention consists of a frame which is composed of end bars, 4, and main supporting bars, 12. The main supporting bars, 12, are provided with gains for supporting the cross bars, 3, through the medium of cam shaped or triangular journals, 13. Said cross bars 3, are provided with inclined deflectors 16, which are inclined as indicated at 17, and which project upwards above the face of the cross bars for the purpose of deflecting ashes or cinders into the ash-pit. Said cross bars are perforated with rectangular openings 5, for admission of the leaf bars 1, which are provided with integral shanks 14, depending from the under side of said leaf bars. Said shanks have recesses to allow the air to pass through in its upward course, thus keeping the shanks cool and also allowing an abundance of air to support the products of combustion. Angular ribs 1^a, are formed on the extreme ends of said leaf bars 1, for assisting in deflecting the refuse products of combustion when the leaf bars are agitated thus throwing small particles and clinkers to either side from the center line of the leaf bars which will pass down through the openings to the ash pit. The cross bars 3, are also provided with rectangular recesses 6, for allowing the air to enter around the shanks 14, previously referred to, thus cooling the grate and protecting the same from undue wear.

The walls 4, previously referred to, support toe-pieces 2, which are distributed along said walls. These toe-pieces are provided with projections 7 and 8, to prevent lateral movement of the same. Formed on and integral with these projections, are lips 10, said lips are secured in rabbets formed in the top on walls 4, and also in the bottom of the mortises 9, by this means the toe-pieces are supported in a permanent position, and can readily be removed and replaced with new ones when desired without interfering with other portions of the grate. Extending under the leaf bars 1, are webs 15, which continue and form the shanks 14, previously referred to. The leaf bars 1, are also provided with oblong openings for allowing air to enter and also for the ashes to pass through into the ash pit.

Claims:

1. A grate comprising a frame, opposing

side walls of said frame having rectangular openings with rabbeted portions therein, toe-pieces provided with lips adapted to rest in said rectangular openings and rabbeted portions thereof, of leaf bars forming a portion of said grate, for the purpose as specified.

2. A grate comprising a frame having bearings thereon, cross bars provided with openings and journals, said journals resting in said bearings on said frame, of opposing side walls of said frame having rectangular openings with rabbeted portions therein, toe pieces provided with lips adapted to rest in said rectangular openings and rabbeted portions thereof, in combination with leaf bars forming a portion of said grate, for the purpose as shown.

In testimony whereof, I have signed my name to this specification in the presence of two subscribing witnesses, this seventeenth day of Sept. 1904.

ALPHEUS C. LIPPINCOTT.

Witnesses:

DAVID E. ROSSER,

CLAIR B. HOLLISTER.