

(No Model.)

E. FALES.
GRATE.

No. 494,372.

Patented Mar. 28, 1893.

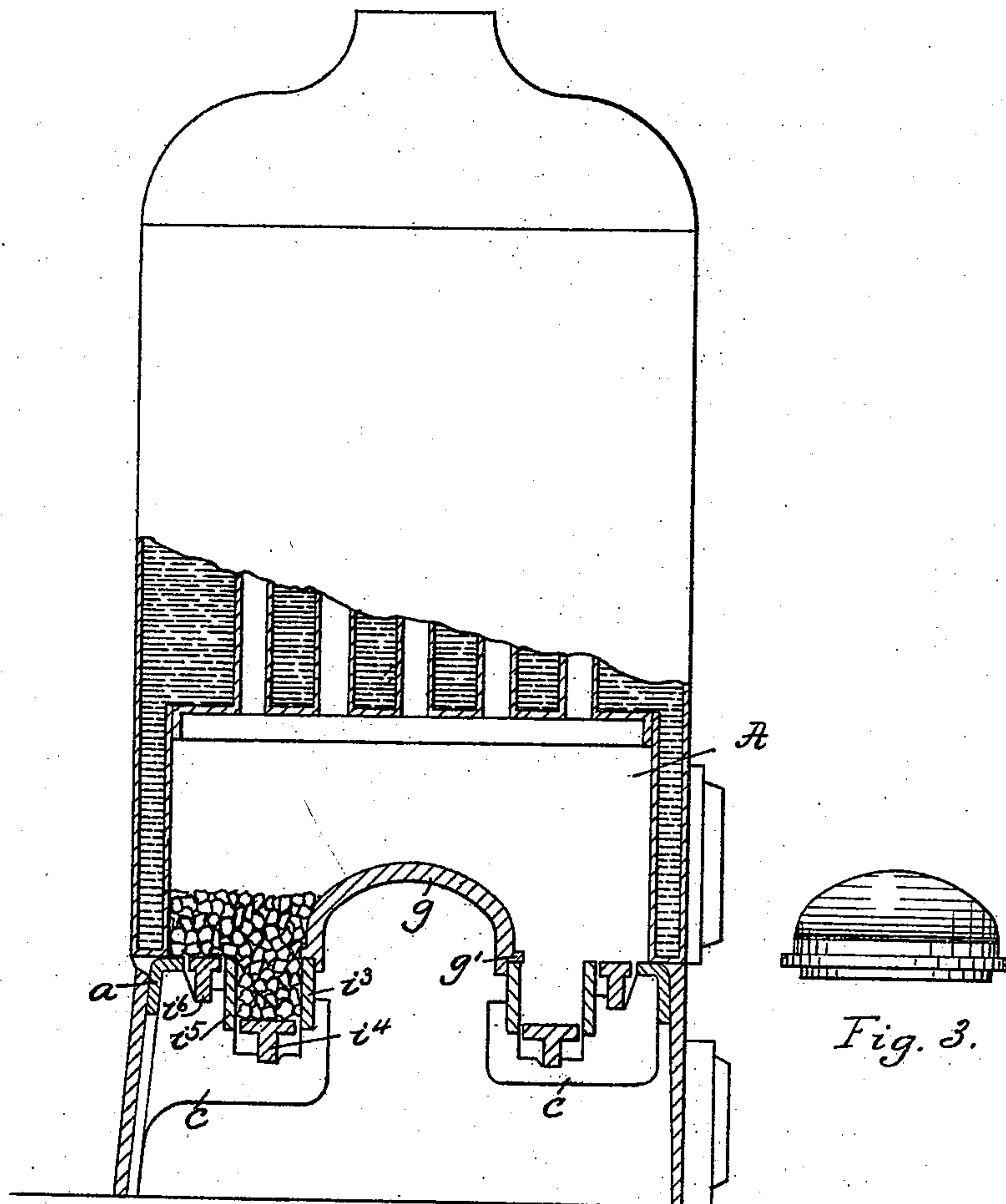


Fig. 1.

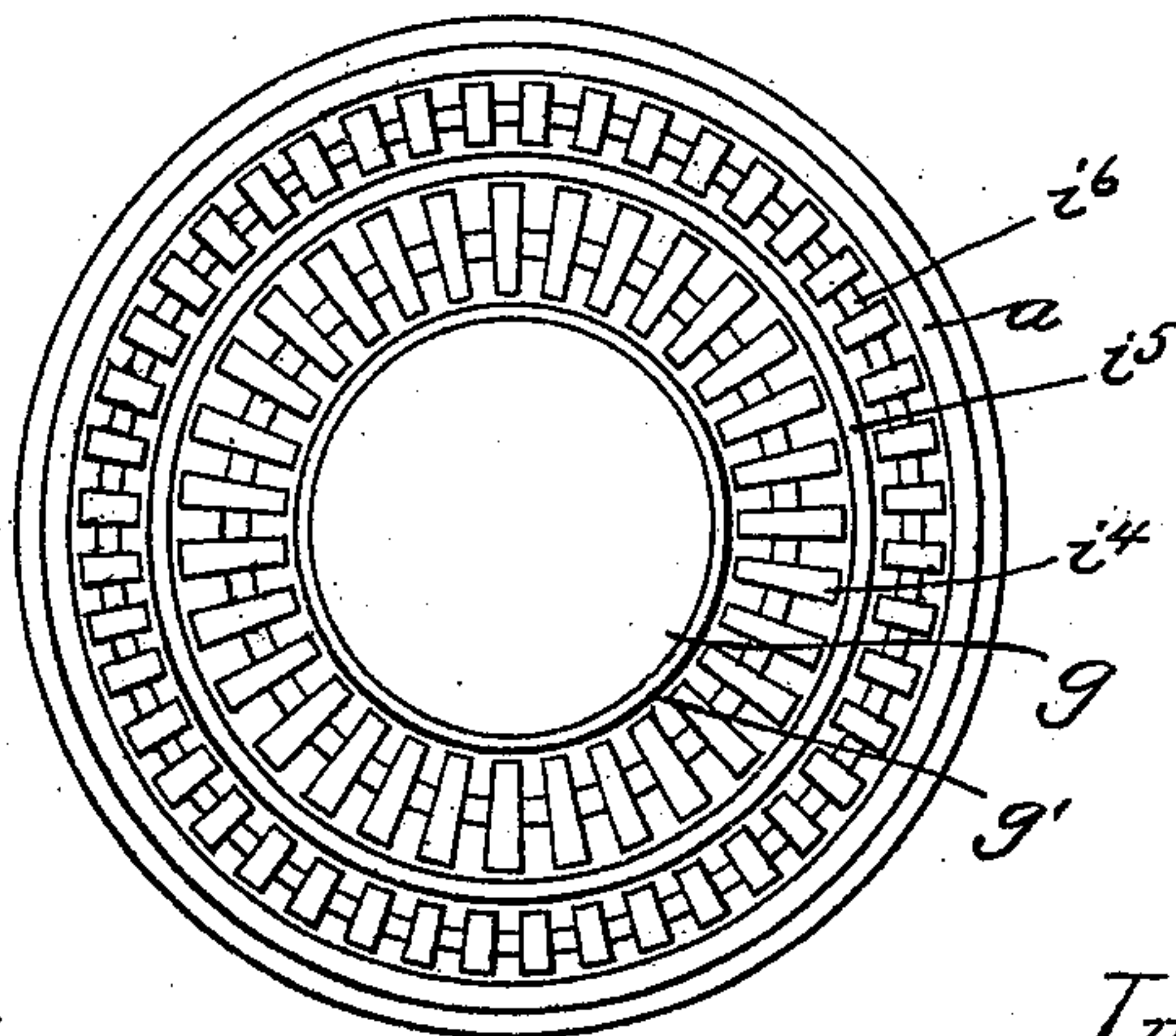


Fig. 2.

Witnesses.
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UNITED STATES PATENT OFFICE.

EDWARD FALES, OF BOSTON, MASSACHUSETTS.

GRATE.

SPECIFICATION forming part of Letters Patent No. 494,372, dated March 28, 1893.

Application filed May 2, 1892. Serial No. 431,501. (No model.)

To all whom it may concern:

Be it known that I, EDWARD FALES, of Boston, county of Suffolk, State of Massachusetts, have invented an Improvement in Grates, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

My invention relates to grates for steam boilers, and other heating apparatuses, and has for its object to improve the construction of the same, whereby the intensity of the heat is greatly increased.

In accordance with this invention the grate is formed with one or more pockets or depressed portions, whereby the bed of coal is made thicker and deeper in some places than in others, and within or inclosed by said pocket or depressed portion, an imperforate dome, or elevated portion, is placed, preferably rising above the uppermost level of the grate, so that above said dome, as the fire is burning, a partial heat vacuum is formed at the central part of the fire, and as a result a suction blast is created which greatly enlivens the bed of coal, producing a larger flame, and more intense heat.

As herein represented the grate is made circular, and hence has a circular pocket or depressed portion, and the dome or elevated portion is likewise made circular, and placed within the inclosure formed by the circular pocket, although such particular formation of parts is not necessary.

Figure 1, shows in side elevation and vertical section, a steam boiler provided with a grate having a centrally arranged dome or elevated portion embodying this invention, the coal being represented in one side only; Fig. 2, a plan view of the bottom of the fire pot; Fig. 3, a side view of the dome removed.

The fire pot A, is made of any suitable shape, and as herein represented is employed in connection with a steam boiler. The bottom of said pot comprises the outer stationary ring *a*, fixed to the frame of the apparatus, to which are secured suitable supports *c*, for the several parts of the grate, a grated ring *i*⁶, placed on said supports *c*, next the outer ring *a*, an im-

perforate vertically arranged ring or cylinder *i*⁵ placed on said supports *c*, next said grated ring *i*⁶, and forming one side wall of the pocket or depressed portion, a grated ring *i*⁴, placed on said supports *c*, next said imperforate wall *i*⁵, and forming the bottom of the pocket or depressed portion, an imperforate vertically arranged ring or cylinder *i*³, placed on said supports *c*, next said grated ring *i*⁴, and forming the opposite side wall of the pocket or depressed portion, and being similarly constructed and arranged, and adapted to perform the same results as set forth in my application Serial No. 423,976 filed March 7, 1892. Supported on said ring *i*³, is a dome *g*, herein represented as made imperforate, and having a convex top, or it may be made hemispherical or substantially so. The lower edge of said dome *g*, is herein provided with a flange *g'*, that it may rest upon said ring *i*³, and is furthermore shouldered to enable it to retain its position, yet it is obvious that this dome *g*, and ring *i*³, could be made in a single piece, or could be made in two pieces, divided differently from that herein shown. As the fire is burning a partial heat vacuum is formed above the dome *g*, by means of which a suction blast is created, tending to enliven the coals, producing a larger and whiter flame, and greatly intensifying the heat.

While I have herein represented the grate as made circular, and likewise the dome, and the latter as arranged centrally therein, it is obvious that said grate may be otherwise formed, and the dome differently shaped, yet located centrally within, or inclosed or partially inclosed by the grate or pocket, or depressed portion therein.

It is obvious that the parts herein specified may be made in sections instead of each in a single piece if desired.

I claim—

1. The grate herein described comprising the outer grated ring *i*⁶, the imperforate concentrically arranged rings *i*⁵, *i*³, the upper ends of which terminate substantially flush with the plane of said grated ring *i*⁶, the grated ring *i*⁴, located between and at or near the bottoms of said rings *i*⁵, *i*³, and supports for said parts,

and the dome *g*, inclosing the space within the inner ring *i*³, and projecting above it, substantially as described.

2. The grate herein described comprising
5 the outer grated ring *i*⁶, the imperforate concentrically arranged rings *i*⁵, *i*³, the upper ends of which terminate substantially flush with the plane of said grated ring *i*⁶, the grated ring
10 *i*⁴, located between and at or near the bottoms of said rings *i*⁵, *i*³, and supports for said parts, and the dome *g*, supported on top of or by said inner ring *i*³, substantially as described.

3. The grate herein described comprising

several concentric imperforate and grated rings alternately arranged, the alternate grat- 15
ed rings being arranged at the top and bottom respectively of the imperforate rings, and the central dome *g*.

In testimony whereof I have signed my name to this specification in the presence of 20
two subscribing witnesses.

EDWARD FALES.

Witnesses:

BERNICE J. NOYES,
LUCY F. GRAVES.