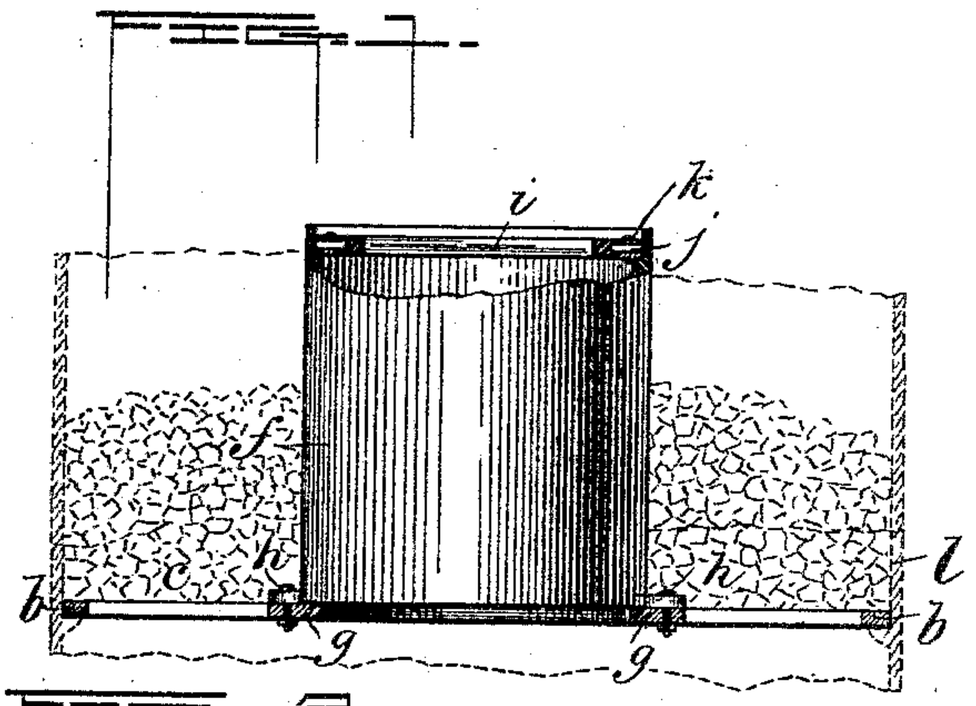
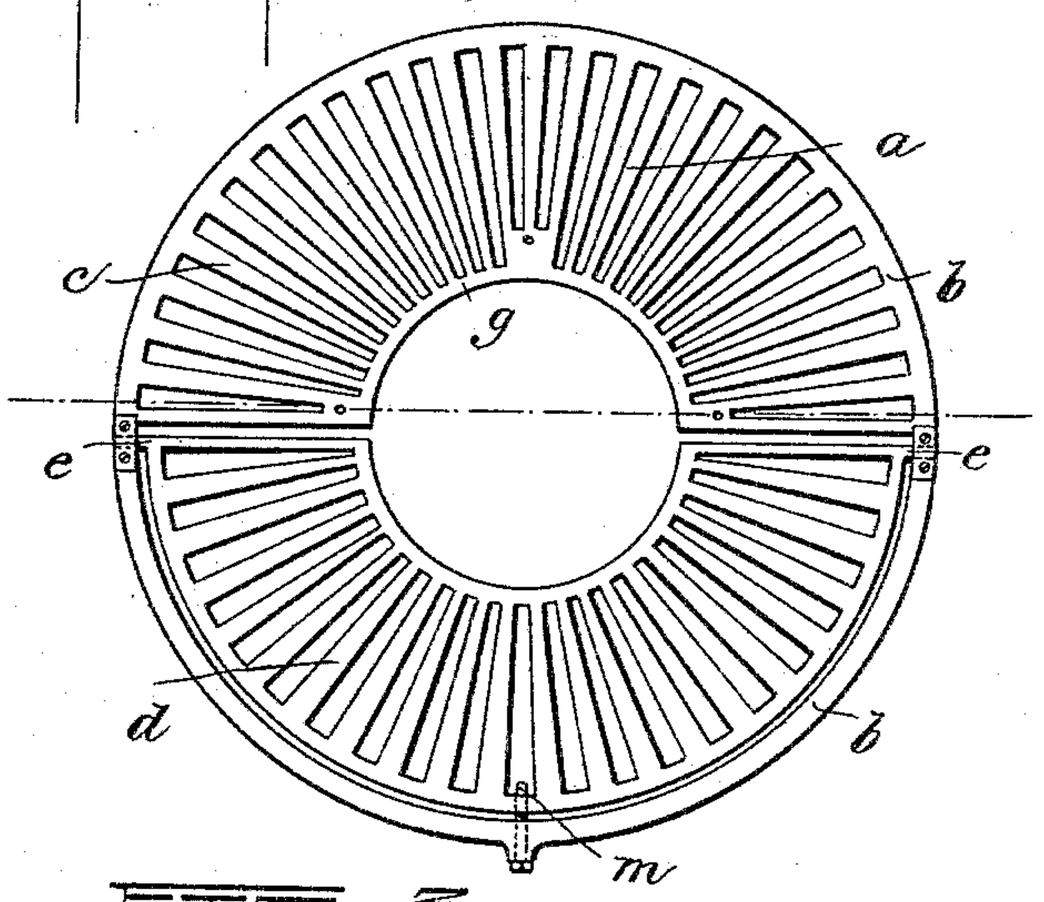
(No Model.)

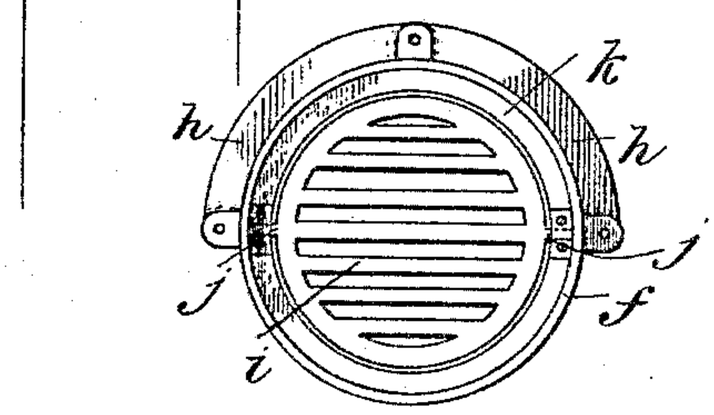
E. B. WOOLSTON.

GRATE.

No. 412,317. Patented Oct. 8, 1889.







WITNESSES:

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his Att'y.

UNITED STATES PATENT OFFICE.

ELIJAH B. WOOLSTON, OF CROPWELL, NEW JERSEY.

GRATE.

SPECIFICATION forming part of Letters Patent No. 412,317, dated October 8, 1889.

Application filed May 22, 1889. Serial No. 311,740. (No model.)

To all whom it may concern:

Be it known that I, ELIJAH B. WOOLSTON, a citizen of the United States, residing at Cropwell, in the county of Camden and State of New Jersey, have invented certain new and useful Improvements in Grates; 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.

My invention relates to grates for the fire-pots of stoves, furnaces, heaters, ranges, and similar devices.

The object I have in view is to provide a simple and novel device by which an intense heat is produced with less fuel and with better effect than with the grates hitherto in use.

With these ends in view my invention consists in the novel features and combinations of parts more fully described hereinafter, and pointed out in the claims.

Referring to the accompanying drawings, Figure 1 represents a sectional elevation of my device; Fig. 2, a plan with the cylinder removed, and Fig. 3 a detail view of the cylinder.

The reference-letter *a* represents a circular grate having its rear half *c* cast integral with the rim *b*, and its front section *d*, which completes the opposite half, removably hung within the rim by means of the trunnions *e*. A central hot-air cylinder or flue *f*, of any convenient height or size, is seated upon the inner concentric ring *g*, and is secured to the rigid rear half *c* of the grate by means of the semicircular flange *h*. The vertical walls of this cylinder are completely closed, and without perforations or apertures of any kind, whereby an uninterrupted draft is made to ascend directly through it. In the top of the central hot-air cylinder *f* is removably seated an upper grate *i*, which is hinged upon the trunnions *j*, bearing upon the rim *k*.

The lower grate, the central hot-air cylinder *f*, and the upper grate, when arranged and constructed as described, may be placed within the fire-chamber formed by the wall *l*, of almost any ordinary device intended for heating or similar purposes. The front section may be used as a drop-grate, and is held in elevated adjustment by the bolt *m*, which bolt will release it and permit it to be dropped when withdrawn.

In using my improved grate the fuel when introduced into the heating-chamber will be distributed around and over the hot-air cylinder, and thereby thrown in closer proximity to the outer wall *l* of the chamber, so that the heat generated from the fuel will be more thoroughly radiated from the exterior of the heater; and also by thus making or creating a hot-air cylinder in the center of the bulk of ignited fuel, and having this hot-air cylinder completely covered with burning fuel, the current of air in passing up through this hot chamber becomes heated in the same degree as the chamber itself, and in its upward passage through the hot fuel in a rapid state of combustion nearer the upper half of the stove is still more heated to the same degree as the ignited fuel through which it passes, while at the same time a peculiar effect is produced upon the hot-air currents within the hot-air chamber as to produce heat in a less time and of a higher thermometric measure.

My device might be altered in many slight ways which might suggest themselves to one skilled in the art; hence I do not limit myself to the exact construction herein shown.

But having thus shown the preferred manner of constructing my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with the fire-pot of a stove or similar device, of a grate consisting in a lower portion composed of a rigid and drop section having a central opening common to both sections, a vertical cylinder having closed vertical walls, and an open bottom registering with said central opening, and a removable grate in the top of the cylinder, all arranged and adapted to operate in the manner and for the purpose substantially as described.

2. The combination, with the fire-pot of a stove or similar device, of a grate composed of a rigid and drop section having a central opening common to both, a vertical cylinder resting upon and secured to the rigid section and registering with said central opening,

and a removable grate seated in the top of the cylinder, all arranged and adapted to operate as described.

3. In a grate for stoves and similar devices, a lower portion composed of a rigid and drop section having a central opening common to both, a vertical cylinder resting upon and secured to the rigid section and surrounding said central opening, said cylinder having closed vertical walls, in combination with a removable grate located in the upper part of the cylinder, in the manner and for the purpose substantially as described.

In testimony whereof I affix my signature in the presence of two witnesses.

ELIJAH B. WOOLSTON.

Witnesses:
CLAYTON H. BRICK,
WILLIAM W. WORRELL.