

E. D. NORCROSS.
Hot-Air Furnace.

2 Sheets--Sheet 1.

No. 127,913.

Patented June 11, 1872.

Fig. 4.

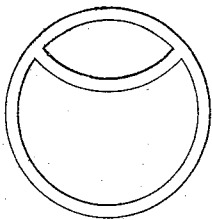


Fig. 1.

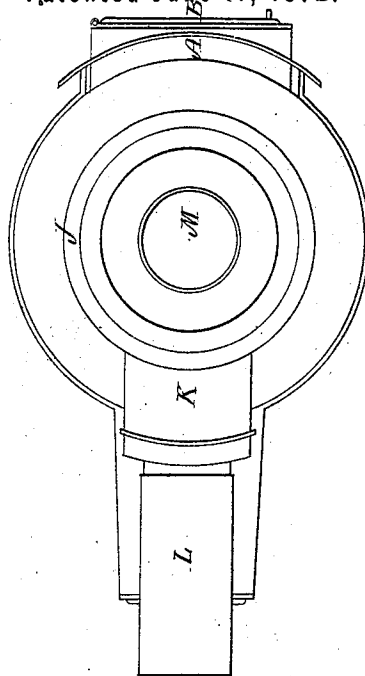


Fig. 2.
on line c.d. of Fig. 6.

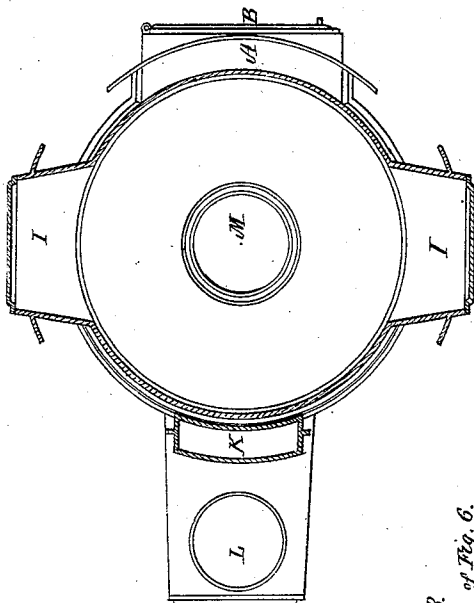
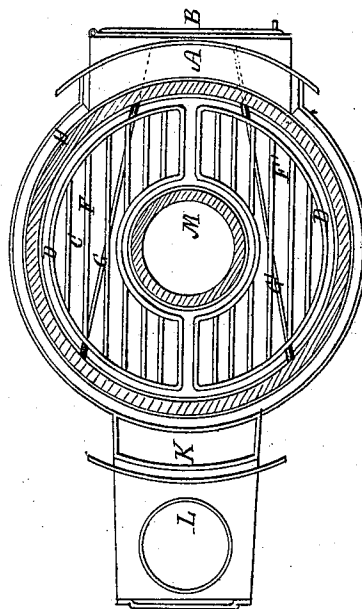


Fig. 3.
on line a.b. of Fig. 6.



Witnesses.

D. M. Paul
W. T. Hutchinson

Inventor.

Edmund D. Norcross
by *atly D. Paul*

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Fig. 6.

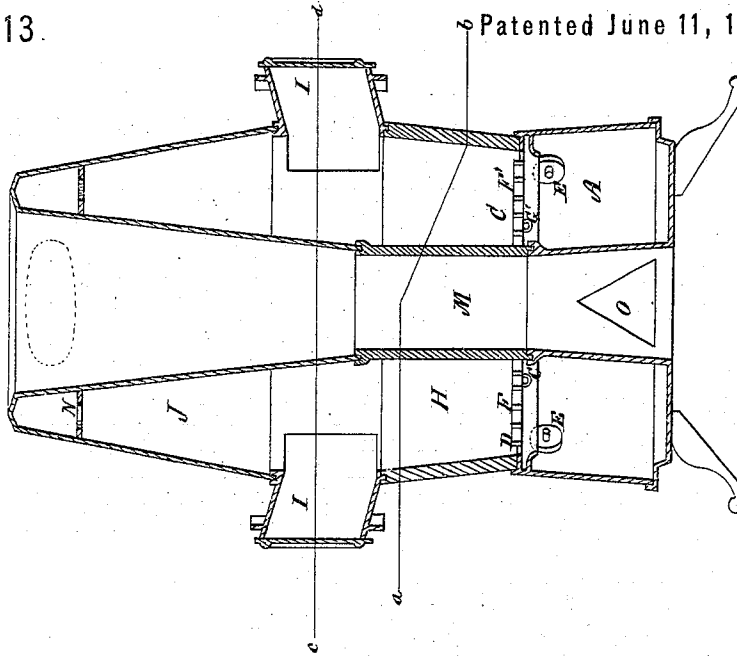
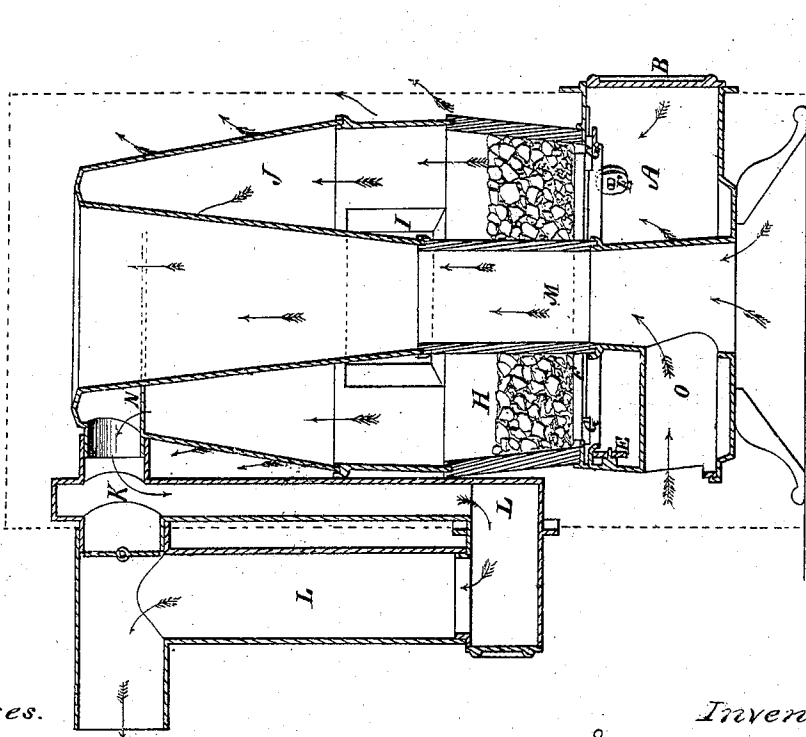


Fig. 5.



Witnesses.

S. H. H. H.
H. J. Hutchinson

Inventor:

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UNITED STATES PATENT OFFICE.

EDMUND D. NORCROSS, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN HOT-AIR FURNACES.

Specification forming part of Letters Patent No. 127,913, dated June 11, 1872.

To all whom it may concern:

Be it known that I, EDMUND D. NORCROSS, of Boston, in the county of Suffolk and State of Massachusetts, have made an invention of certain new and useful Improvements in Hot-Air Furnaces or Stoves; and do hereby declare the following to be a full, clear, and exact description thereof, due reference being had to the accompanying drawing making part of this specification, and in which—

Figure 1 is a plan; Figs. 2, 3, and 4 horizontal sections; and Figs. 5 and 6 vertical sections of a hot-air furnace embodying my improvements.

This invention relates to hot-air furnaces or stoves provided with a central or an internal air-heating passage or flue extending through the furnace or stove from top to bottom; and it consists in the combination, with a furnace or stove of this character, of an annular grate encircling the inner flue, and constructed and arranged to operate substantially as hereinafter described.

The drawing accompanying this specification represents at A the base or ash-pit of a hot-air furnace, the door of which is shown at B, such base being in the present instance circular in horizontal section, although it may be rectangular or polygonal. Within the upper part of the base A I dispose the grate C, such grate being composed of an annular band or ring, D, supported upon rollers E E E, pivoted within the base A, as shown, in order that the entire grate may be easily rotated and "shaken," the remainder of the grate being composed of two semicircular gratings, F, F', which are mounted upon horizontal rods or journals G G', pivoted at each end within the ring D, the outer extremities of these rods extending into the doorway of the ash-pit, in order to be readily accessible for the purpose of tilting the gratings as occasion requires, the said rods converging at front in order that ashes or coals which are dumped from either side of the grate shall be thrown toward the door of said ash-pit. H represents the fire-pot, which is cylindrical in form, and provided with two fuel-feeding doors, I I, disposed upon opposite sides. J represents the dome of the furnace, which is cylindrical in form,

and is a continuation of the fire-pot, this dome being open at top, and provided with a smoke-discharge flue, K, said discharge-flue being constructed with a bent-pipe, L, which constitutes an indirect flue after the manner of many furnaces now in use. M in the drawing represents a vertical open cylinder or pipe, which is erected upon the bottom of the ash-pit and opening through the same, such cylinder rising upward within the center of the fire-pot and into the dome, and uniting with the latter at its extreme upper part, by this means producing a double radiating surface—an inner and outer one. N represents a horizontal shield or deflector, placed within the upper part of the dome J, for the purpose of deflecting the smoke and waste products of combustion from the smoke-flue K, and compel them to take an indirect course before escaping thereat.

Owing to the annular form of the fire-pot, as herein shown, I prefer to employ two fuel-feeding apertures for the sake of convenience, although two are not absolutely necessary. By the employment of the two gratings, of which the grate is composed, I am enabled to partially dump or to clear one half of the fire, while the other remains undisturbed, while at the same time the entire grate may be partially revolved or shaken, as with ordinary gratings. In addition to the opening through the bottom of the ash-pit, the cylinder M may receive air through a horizontal branch-pipe, O, which extends through the wall of the ash-pit, as represented, and is contracted at top in order to prevent collection of soot and ashes.

When a small amount of fire is required, the annular fire-pot may be divided by suitable partitions, and the use of one half discontinued.

With regard to the inner circulating flue or passage M I would remark that its precise form or position is not an arbitrary one, since in lieu of being disposed centrally of the fire-pot or dome it may be placed to one side thereof, and may be a part of said fire-pot, and cast homogeneous therewith, as shown in Fig. 4 of the drawing. I would also remark that I contemplate the employment of double or ex-

tension partitions in the annular fire-pot to divide the same for purposes stated or to utilize a greater or less portion thereof according to the amount of fire desired.

Claims.

I claim—

1. In combination with the inner flue M, before named, and the surrounding fire-pot, a grate, composed of two segmental gratings, pivoted to a common ring or band which is

capable of revolving within the upper part of the ash-pit, as and for the purposes stated.

2. I also claim the arrangement of the segmental gratings upon rods or journals converging toward the door of the ash-pit, as and for the purposes described.

EDMUND D. NORCROSS.

Witnesses:

FRED. CURTIS,
W. E. BOARDMAN.