

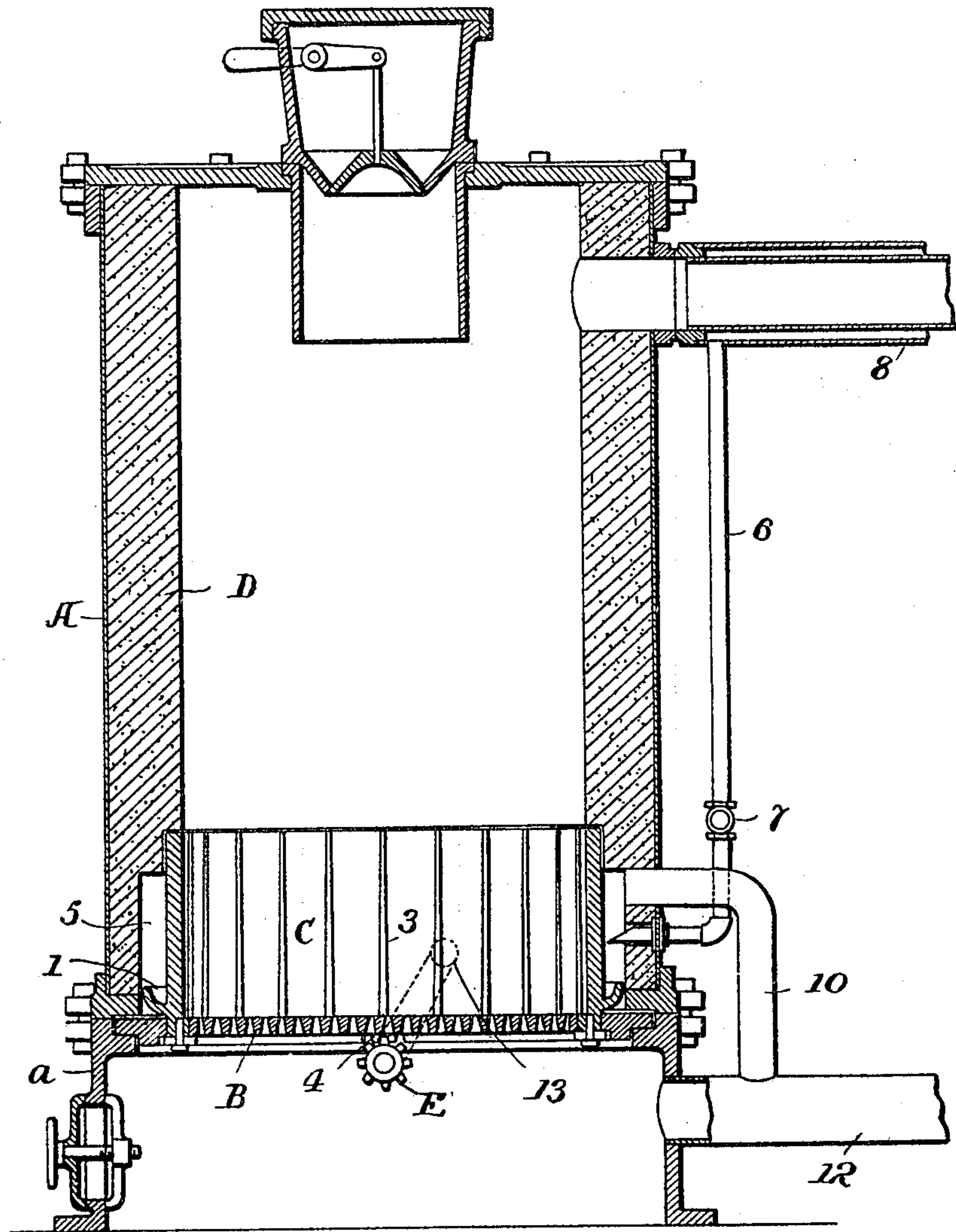
No. 819,849.

PATENTED MAY 8, 1906.

F. W. BURGER.

FURNACE.

APPLICATION FILED AUG. 4, 1905.



Witnesses
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UNITED STATES PATENT OFFICE.

FREDERICK W. BURGER, OF FORT WAYNE, INDIANA, ASSIGNOR TO
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FURNACE.

No. 819,849.

Specification of Letters Patent.

Patented May 8, 1906.

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To all whom it may concern:

Be it known that I, FREDERICK W. BURGER, a citizen of the United States, residing at Fort Wayne, in the county of Allen and State of Indiana, have invented certain new and useful Improvements in Furnaces, of which the following is a specification.

My invention relates to furnaces; and it consists in a ready means for supplying the air passing below the grate with moisture and for superheating the latter to insure the production of a combustible gas, as fully set forth hereinafter and as illustrated in the accompanying drawing, in which the figure is an elevation in section of a furnace embodying my improvements.

A casing or fireplace A of any suitable character is provided with a bearing or support a for a grate B and with a fire-pot C, and, as shown, there is a lining D, of suitable refractory material, which is recessed to receive the upper portion of the fire-pot and to form around the latter an annular chamber 5. With the chamber 5 communicates a water-supply pipe 6, having a suitable cock 7, and when it is desired that the water shall be heated it may pass to the pipe from a jacket 8, surrounding the discharge-flue of the furnace. With the chamber 5 communicates a duct 10, which also communicates with a duct 12, through which air is discharged into the ash-pit below the grate B.

By the arrangement above described I am enabled to supply steam, and, if desired, superheated steam, to the air-duct and to the fire to secure the production of a combustible gas which passes to the flue 8, inasmuch as the water discharged into the chamber 5 in limited quantities is brought against the outside of the fire-pot and is vaporized and superheated and supplied by the conduit or duct 10 to the air which flows into the ash-pit. Where the water can be sufficiently heated, it may be vaporized before passing to the pipe 6, in which case it is projected in the form of steam against the outer portion of the heated fire-pot. To collect any water which may fail in the first instance to be vaporized or the

condensation from any steam, the fire-pot is preferably provided with an external flange having an annular receptacle 1 near the bottom of the fire-pot into which the liquid may pass, by the heat of which it will be vaporized.

In order to insure the superheating of the moisture and prevent the chilling of the fire-pot at one place, a rotatable fire-pot is preferably employed supported within the furnace in any suitable manner, but preferably resting upon the grate, the latter having teeth 4, engaging a pinion E upon a shaft passing through the casing and provided with a handle 13 for either turning the grate continuously or back and forth.

Without limiting myself to the construction shown, I claim—

1. The combination with the casing and lining of a gas-producing furnace, of a fire-pot, a grate, a chamber around the fire-pot, a pipe supplying moisture to said chamber, an air-duct opening into the ash-pit below the grate, and a duct between the said chamber and the ash-pit, substantially as set forth.

2. The combination in a gas-producing furnace, of a fire-pot having an external water-receptacle, a chamber inclosing said receptacle, means for supplying moisture to said receptacle, a grate, an air-duct opening below the grate, and a communication between the air-duct and said chamber, substantially as set forth.

3. A gas-producing furnace having a grate, a fire-pot, a lining recessed to receive the fire-pot and to form a chamber around the fire-pot, means for discharging moisture against the fire-pot in said chamber, an air-duct opening below the grate, and a communication between the said air-duct and said chamber, substantially as set forth.

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

FREDERICK W. BURGER.

Witnesses:

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