

(No Model.)

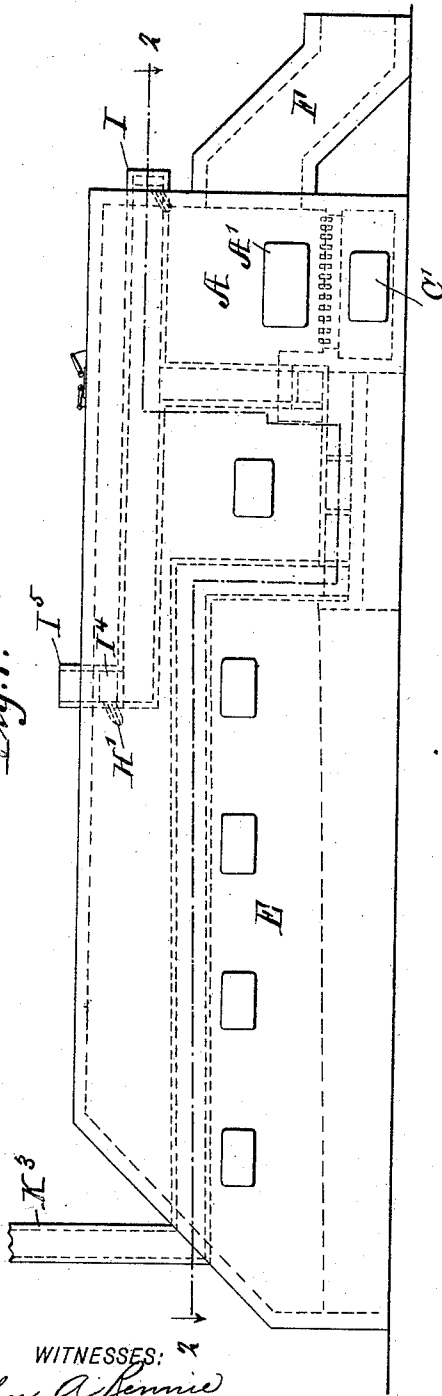
2 Sheets—Sheet 1.

J. T. JENKINS.
FURNACE.

No. 500,905.

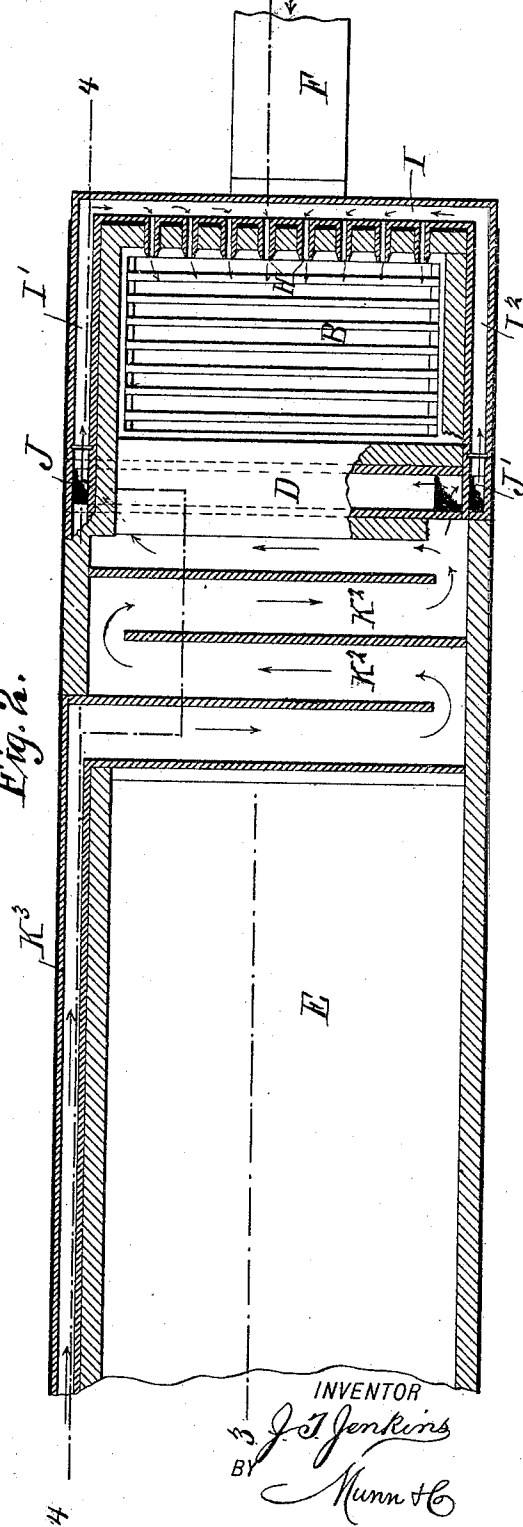
Patented July 4, 1893.

Fig. 1.



WITNESSES:
John A. Rennie
W. Sedgwick

Fig. 2.

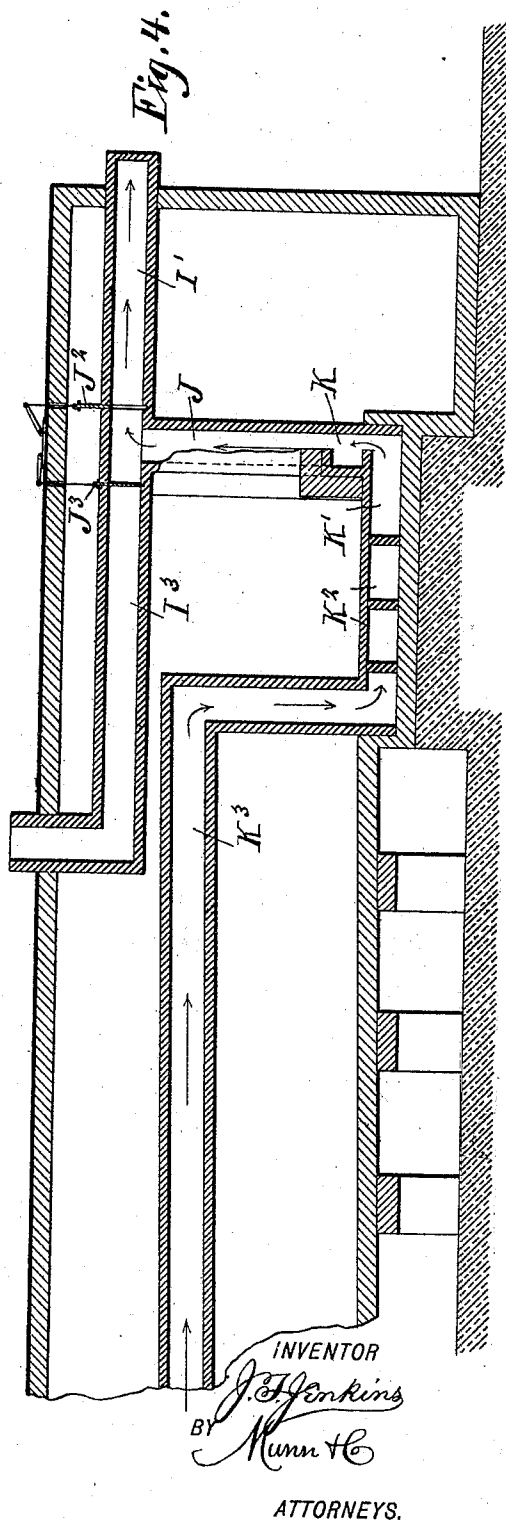
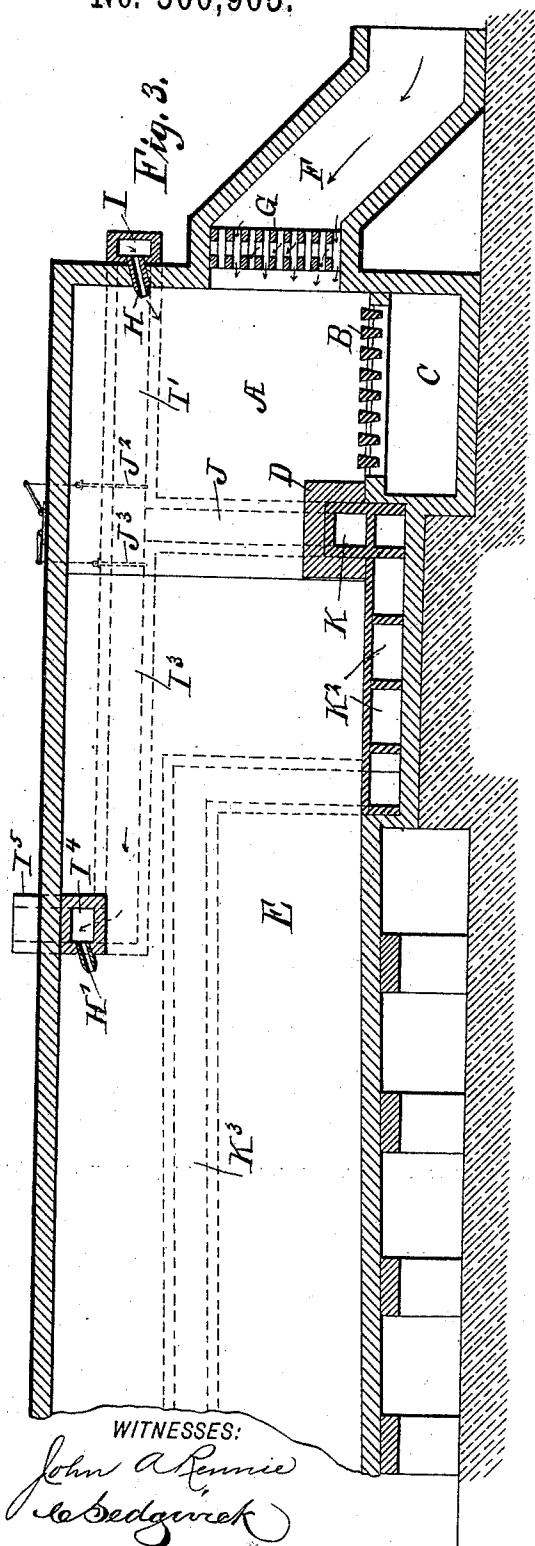


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UNITED STATES PATENT OFFICE.

JOHN T. JENKINS, OF MASSILLON, OHIO.

FURNACE.

SPECIFICATION forming part of Letters Patent No. 500,905, dated July 4, 1893.

Application filed November 28, 1892. Serial No. 453,394. (No model.)

To all whom it may concern:

Be it known that I, JOHN T. JENKINS, of Massillon, in the county of Stark and State of Ohio, have invented a new and Improved Furnace, of which the following is a full, clear, and exact description.

The object of the invention is to provide a new and improved furnace which is simple and durable in construction, very effective in operation and arranged to dispense with the usual checker brick, as now employed in the Siemens regenerative gas furnace, and other furnaces.

The invention consists of certain parts and details, and combinations of the same, as will be hereinafter described and then pointed out in the claims.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation of the improvement. Fig. 2 is a sectional plan view of the same on the line 2—2 of Fig. 1. Fig. 3 is a sectional side elevation of the same on the line 3—3 of Fig. 2. Fig. 4 is a like view of the same on the line 4—4 of Fig. 2.

The improved furnace is built of suitable material and is provided with a combustion chamber A of any desired dimensions, and containing a grate B below which is arranged an ash pit C. Doors A' and C' lead to the combustion chamber A, and the ash pit C, respectively, as plainly shown in Fig. 1, so that access is had to the said chamber and pit from the outside.

The door A' is used to start the furnace by first firing with a small quantity of wood burned on the grate B, and the other door C' is employed for removing the ashes from the pit C. A bridge wall D extends transversely at the back of the combustion chamber A, a suitable distance above the grate B, as plainly indicated in Fig. 3, and at the rear of this bridge wall is built the working chamber E, arranged according to the use made of the furnace.

Into the front end of the combustion chamber A leads the gas inlet F connected with a suitable source of gas supply and provided in its mouth with checker brick G, which serves to spread the incoming gas so as to

prevent the latter from entering the combustion chamber in a dense volume.

In the front wall of the combustion chamber A and above the inlet F are arranged jets H slightly inclined downwardly, as shown in Fig. 3, so that the air passing through the said jets, tends to draw the gases forward and expand the same in all parts of the combustion chamber A, and the burning of the gas with the air uniformly heats the entire furnace. The air jets H connect with a transversely extending channel I arranged on the outside of the front wall of the combustion chamber A, and the ends of this channel I are connected with branch channels I' and I² extending rearwardly and leading to vertical channels J and J', respectively connected with transversely-extending channels K and K' formed in the bridge wall D, as plainly shown in the drawings. The channel K' connects with a series of transversely-connected channels K², the last one of which connects with an inlet flue K³ extending in one of the side walls of the chamber E, as plainly shown in Fig. 2. The channel I' is also continued rearwardly to form a channel I³, leading into a transverse channel I⁴, provided with forwardly and downwardly extending jets H', similar to the jets H and serving to discharge hot air into the forward part of the working chamber or hearth E, to heat the latter uniformly in all its parts. An outlet pipe I⁵ connects with one end of the transverse channel I⁴, for carrying off the hot air. In the branch channels I' and I³, are arranged valves J² and J³, respectively, so as to control the amount of air passing to the channels I' and I³ respectively. The valves J² and J³ are operated from the top of the furnace, and any desired suitable mechanism may be employed for the purpose.

The operation is as follows: When it is desired to start the furnace, a small wood fire is first made on the grate B in the combustion chamber A, and when the latter has been heated, say up to a red heat, then gas is admitted through the inlet F, and burned in the combustion chamber A and at the same time a small quantity of air is admitted to the combustion chamber by the jets H. When the furnace has finally obtained a white heat no further wood is burned on the grate,

as the furnace is then kept going at a uniform temperature by the regulated amount of incoming gas and air passing through the combustion chamber A from the inlet F and jets H, respectively. As above described, the air is heated by traveling along the channels built in the side wall, the bottom of the chamber E and in the bridge wall D, so that the air issues with considerable pressure at the jets H, and consequently tends to distribute the burning gas in all parts of the combustion chamber A.

It will be seen that when the furnace is started the gas and air are admitted in proper proportions, which are gradually increased according to the state of heat in the chamber until the proper desired temperature is reached. It will further be seen that the gas and the air blast issuing from the jets H strike each other a short distance from the bridge wall D so that the heat will expand in the combustion chamber and in the chamber E.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

1. A furnace comprising a combustion chamber, a gas inlet leading to the said combustion chamber and provided with checker brick outside the combustion chamber to spread the gas, said gas inlet being substantially horizontal where it connects with the combustion chamber, and the checker brick being located in the said horizontal portion, and a series of jet openings for discharging hot air into the said chamber above the gas inlet, substantially as shown and described.

2. A furnace comprising a combustion chamber, a bridge wall at the back of the same a gas inlet leading to the said combustion chamber and provided in its mouth with checker brick to spread the gas, said gas inlet being substantially horizontal where it connects with the combustion chamber, and the checker brick being located in the said horizontal portion, and a series of jet openings for discharging hot air into the said chamber above the gas inlet, the said jet openings being inclined downwardly and forwardly, so that the gases and the air strike each other a short distance from the bridge wall, substantially as shown and described.

3. A furnace comprising a combustion chamber, a bridge wall, a working chamber in the rear of the bridge wall, and in communication with the said combustion chamber,

a gas inlet leading to the said chamber at the front end thereof, and provided in its mouth with checker brick to spread the gas, said gas inlet being substantially horizontal where it connects with the combustion chamber, and the checker brick being located in the said horizontal portion and a series of jet openings for discharging hot air into the said chamber above the gas inlet, substantially as shown and described.

4. A furnace comprising a combustion chamber, a bridge wall, a working chamber in the rear of the bridge wall, and in communication with the said combustion chamber, a gas inlet leading to the said chamber at the front end thereof, and provided in its mouth with checker brick to spread the gas, said gas inlet being substantially horizontal where it connects with the combustion chamber, and the checker brick being located in the said horizontal portion, a series of jet openings for discharging hot air into the said chamber above the gas inlet, an air inlet flue located at the rear end of the furnace and air inlet channels arranged in the sides and bottom of the furnace so that the incoming air is heated by the heat passing from the combustion chamber into the working chamber, substantially as shown and described.

5. A furnace comprising a combustion chamber, a bridge wall, a working chamber in the rear of the bridge wall, and in communication with the said combustion chamber, a gas inlet leading to the said chamber at the front end thereof, and provided in its mouth with checker brick to spread the gas, said gas inlet being substantially horizontal where it connects with the combustion chamber, and the checker brick being located in the said horizontal portion, a series of jet openings for discharging hot air into the said chamber above the gas inlet, an air inlet flue located at the rear end of the furnace, air inlet channels arranged in the sides and bottom of the furnace so that the incoming air is heated by the heat passing from the combustion chamber into the working chamber, and a series of jet openings for discharging hot air into the said working chamber, substantially as shown and described.

JOHN T. JENKINS.

Witnesses:

THOS. H. MORGAN,
H. KNEPPER.