No. 732,867. PATENTED JULY 7, 1903.

A. C. KLOMAN.

HOT BLAST STOVE.

APPLICATION FILED AUG. 9, 1902.

NO MODEL. 2 SHEETS—SHEET 1.

Fig. I.

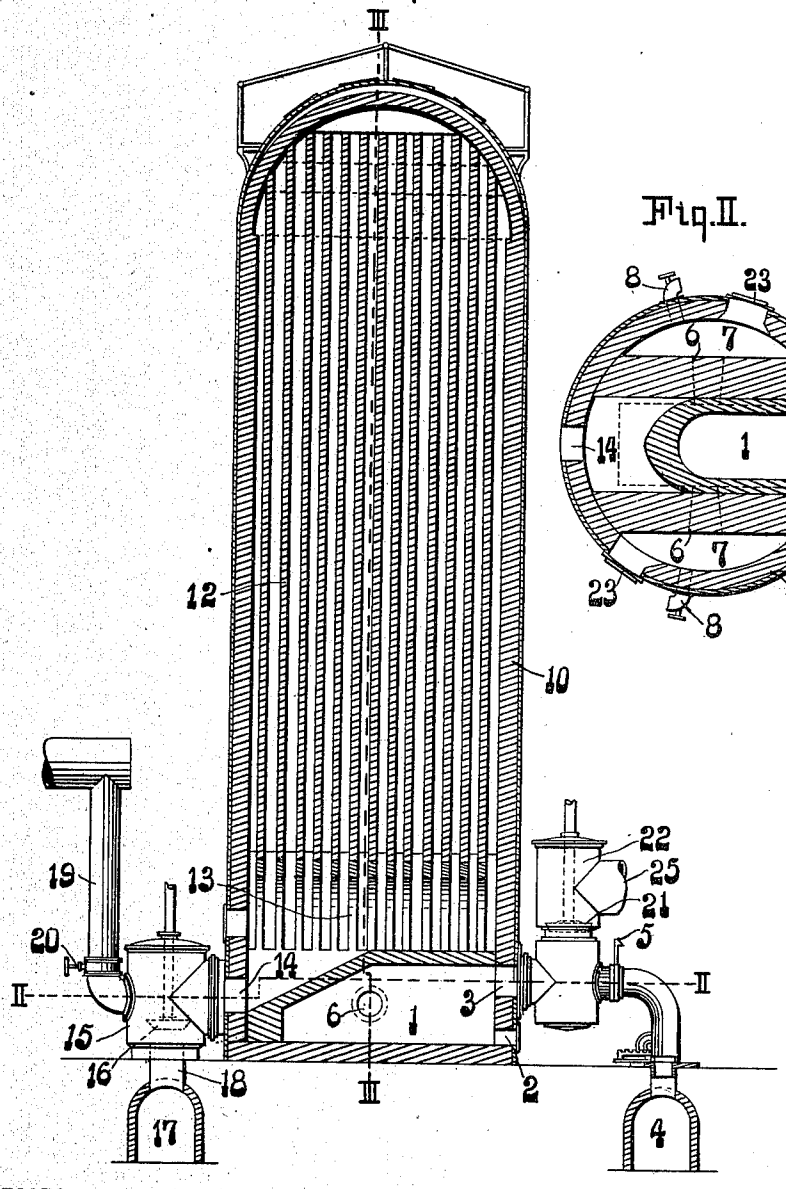


Fig. II.

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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

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NO MODEL. 2 SHEETS—SHEET 2.

Fig. III.

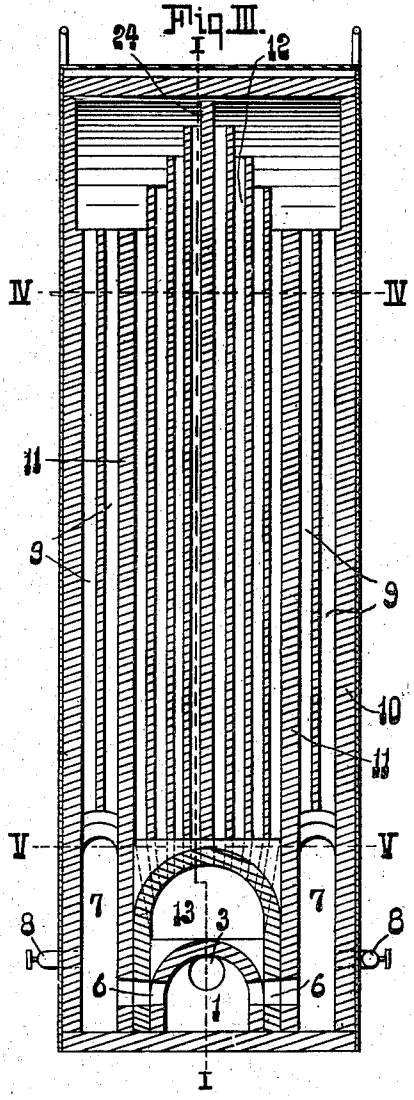


Fig. IV.

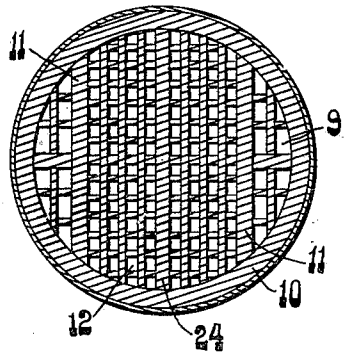
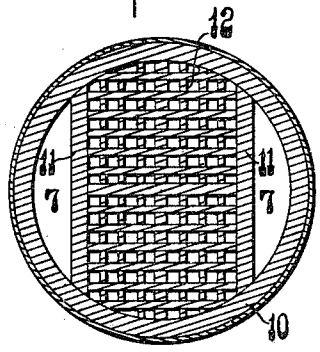


Fig. V.



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No. 732,867. Patented July 7, 1903.

UNITED STATES PATENT OFFICE.

ANDREW C. KLOMAN, OF SAXTON, PENNSYLVANIA.

HOT-BLAST STOVE.

SPECIFICATION forming part of Letters Patent No. 732,867, dated July 7, 1903.

Application filed August 9, 1902. Serial No. 119,107. (No model.)

To all whom it may concern:

Be it known that I, ANDREW C. KLOMAN, a citizen of the United States, residing at Saxton, in the county of Bedford and State of Pennsylvania, have invented or discovered new and useful Improvements in Hot-Blast Stoves, of which the following is a specification.

In the accompanying drawings, which make part of this specification, Figure I is a section on the line I I of Fig. III; Fig. II, a section on the line II II of Fig. I, the valve-boxes being omitted; Fig. III, a section on the line III III of Fig. I; Fig. IV, a section on the line IV IV of Fig. III, and Fig. V a section on the line V V of Fig. III.

My invention relates to hot-blast stoves; and its object is to provide means whereby combustion is made more nearly perfect and a higher temperature is obtained than in the ordinary fire-brick stove and whereby the blast is divided into a plurality of non-communicating currents, thereby giving the blast more time to heat the stove, and thereby effecting a very much higher temperature.

In the drawings, 1 is the preliminary combustion-chamber, into which air passes by port 2 and gas by port 3 from gas-flue 4. The passage of gas is controlled by sliding valve 5. The chamber 1 lies at the bottom of the stove and transversely thereof and is provided with lateral ports 6, leading to combustion-chambers 7, where combustion begun in chamber 1 is completed. Air is supplied to chambers 7 through valved inlets 8. Chambers 7 communicate at their tops with checker-work chambers 9. Both of these chambers are bounded laterally by a portion of the stove-wall 10 and by vertical partitions 11, whose horizontal sections are chords of the wall 10. The space between the partitions 11 is occupied by checker-work 12, chamber 1, and arched offtake-chamber 13, which incloses chamber 1 and supports the checker-work 12. Chamber 13 has the port 14, leading to the valve-chamber 15, provided with valve 16. The chamber 15 leads to stack-flue 17 by way of pipe 18 and to the cold-air-inlet pipe 19, provided with the valve 20.

21 is a valve in valve-chamber 22, through which regenerated air passes from the stove.

23 23 are doors through which access may be had to the chambers 7 for the purpose of cleaning them.

The checker-work 12 is divided by the central partition 24 into two sections, each coöperating with a chamber 7 and a chamber 9.

The operation is as follows: Valves 5 and 16 being open and valves 20 and 21 being closed, gas and air are admitted into and ignited in preliminary combustion-chambers 1. Here a part of the gas is consumed and the remainder is heated to a high degree. The burning and heated gases pass from the preliminary combustion-chamber through substantially horizontal ports 6 into the combustion-chamber 7, where the unconsumed highly-heated gas is supplied through inlets 8 with regulated quantities of air which ignites chemically with the heated unconsumed gas and produces a far greater degree of heat on the combustion-chamber than would have been possible with the same quantity of gas had all the necessary air been supplied initially to the combustion-chamber. The products of combustion pass up through the checker-work chambers 9 and down the checker-work 12 into arched offtake-chamber 13, whence they pass by way of port 14, valve-chamber 15, and pipe 18 into stack-flue 17. After the process has continued for a time long enough to highly heat the checker-work, valves 5 and 16 are closed and valves 20 and 21 are opened. Air is now blown or drawn through pipe 19, chamber 15, and port 14 into chamber 13, whence it passes upward through checker-work 12 and downward through chamber 9 into chamber 1. From chamber 1 the air, having become highly heated in its passage through the stove, passes out through port 3 into chamber 22, whence it is conducted by pipe 25 to the twyers of a blast-furnace or to any other desired location.

Having described my invention, I claim—

1. In a hot-blast stove, a preliminary combustion-chamber, a second combustion-chamber communicating therewith and completing therein the combustion begun in the preliminary chamber, and stove-heating flues leading from the second combustion-chamber only through which the products of combustion pass, said second combustion-chamber having individual means for supplying air thereto.

2. In a hot-blast stove, a preliminary combustion-chamber in the lower part of the same, a second combustion-chamber in the same part of the stove communicating therewith by a substantially horizontal connection, flues connecting with said second chamber through which the products of combustion pass.

3. In a hot-blast stove, a transverse preliminary combustion-chamber, combustion-chambers at the sides of said chamber connected therewith, and independently receiving heat and products of and for combustion from the preliminary combustion-chamber, flues constituting an uptake from the second combustion-chamber, and central flues forming a downtake from the said uptake.

4. In a hot-blast stove, a preliminary combustion-chamber, a plurality of combustion-chambers communicating with and branching from the same, means for supplying air to each chamber, and flues through which the waste products of combustion pass.

5. In a hot-blast stove, a preliminary combustion-chamber, an arched chamber inclosing the same, a combustion-chamber on each side of the said two chambers communicating with the preliminary combustion-chamber, uptake-flues above the side combustion-chambers, and central downtake-flues communicating with the top of the uptake-flues work, and supported on and communicating with the arched chamber.

Signed at Pittsburg this 7th day of August, 1902.

ANDREW C. KLOMAN.

Witnesses:
F. N. BARBER,
F. E. MUCKLE.