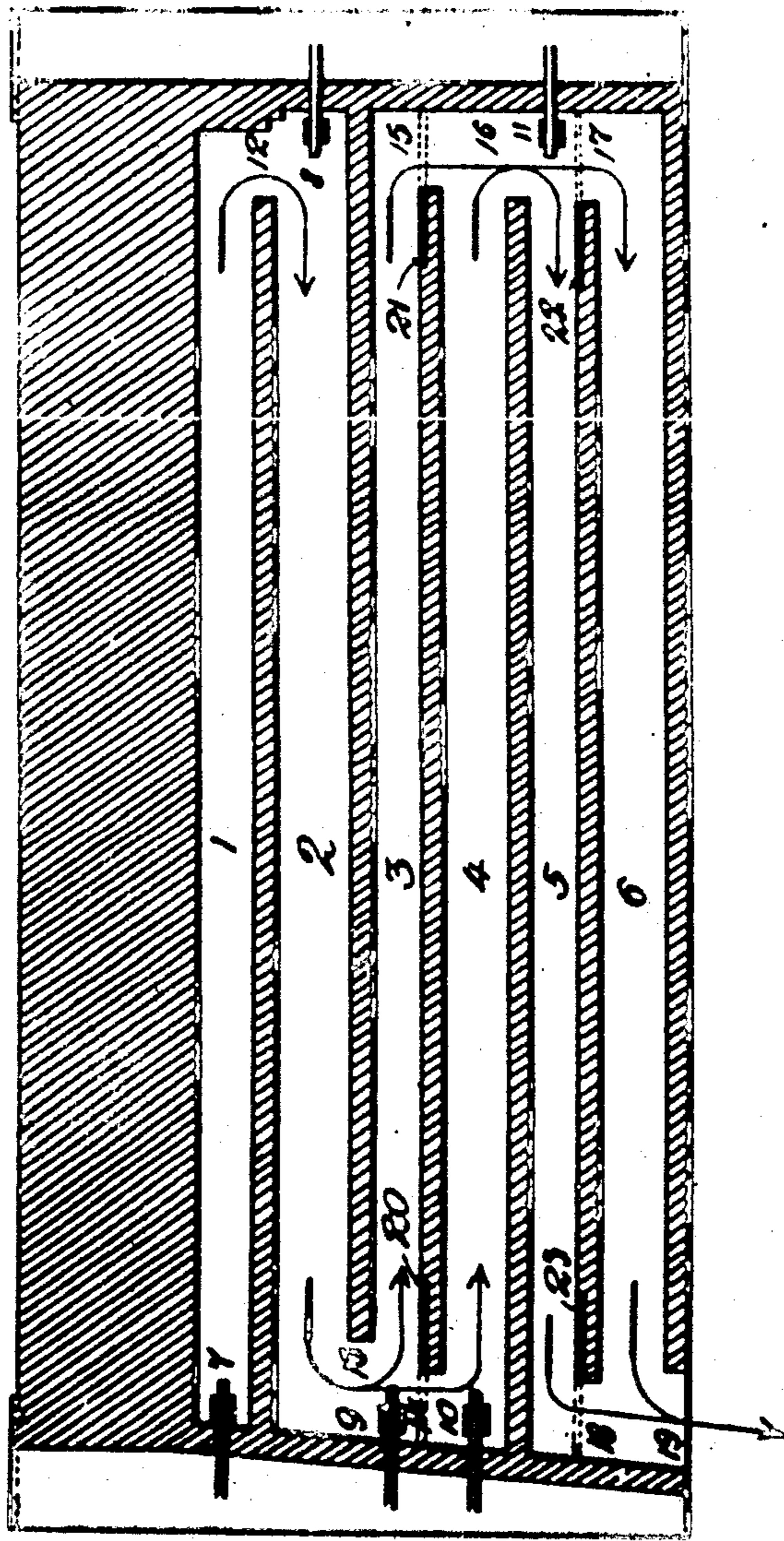


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W. H. BLAUVELT.
SYSTEM OF HEATING FLUES FOR RETORT COKE OVENS.
APPLICATION FILED FEB. 20, 1900.

947,525.

Patented Jan. 25, 1910.



Witnesses:
W. J. [Signature]
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Inventor
William H. Blauvelt
By his Attorney
Clarkson A. Collins

UNITED STATES PATENT OFFICE.

WILLIAM H. BLAUVELT, OF SYRACUSE, NEW YORK, ASSIGNOR TO SEMET-SOLVAY COMPANY, OF SYRACUSE, NEW YORK, A CORPORATION OF NEW YORK.

SYSTEM OF HEATING-FLUES FOR RETORT COKE-OVENS.

947,323.

Specification of Letters Patent. Patented Jan. 25, 1910.

Application filed February 20, 1909. Serial No. 479,212.

To all whom it may concern:

It is known that L. WILLIAM H. BLAUVELT, a citizen of the United States, residing in the city of Syracuse, county of Onondaga, and State of New York, have invented a new and Improved System of Heating-Flues for Retort Coke-Ovens, of which the following is a specification.

My invention relates particularly to retort coke ovens heated by what is termed in the art a "series flue system". Heretofore in such a construction the heating flues have been connected in series, so that the products of combustion of the gas burned in any flue are compelled to traverse the entire length of all the flues below it before passing out of the flue system. The operation of this arrangement is satisfactory with ovens of comparatively small capacity, the difference in draft between the several flues about balancing the difference in gas pressure in the different parts of the oven chamber.

The result of the introduction of ovens of materially greater capacity, and worked at greater speed, thus requiring the burning of a similarly increased quantity of gas in the heating flues, has been (since the structure of the ovens makes it impracticable to increase the area of the heating flues in proportion to the increase in the amount of gas burned) to necessitate a great increase in the velocity of the gases passing through the heating flues. This increase in velocity causes increased friction, so that much more draft is required to insure the proper burning of the gas, and the difference in the draft between the two ends of the flue system is thus largely increased. These changes have resulted in the unbalancing of the relative gas pressures in the heating flues and the oven chamber, with a consequent increase in leaks between the two.

The object of my improvements is to correct this difficulty by providing such an arrangement of horizontal heating flues as to reduce the velocity of the gas, and consequently the friction, in the lower flues, and thereby lessen the draft required.

An embodiment of my invention is illustrated in the accompanying drawing, which shows a vertical longitudinal section of a system of horizontal heating flues, comprising six flues.

Referring to the drawing, 1, 2, 3, 4, 5, 6, indicate the heating flues, and 7, 8, 9, 10, 11,

indicate burners at which gas and air are introduced in the usual manner for combustion in the flues.

In the arrangement shown in the drawing, the upper flues, 1 and 2, are shown connected in series, as heretofore, gases from flue 1 entering and traversing the entire length of flue 2, together with the gases burned and produced in flue 2.

Opposite the opening, 13, through which the gases pass from flue 2, there is provided an opening, 14, from flue 3, into flue 4, connecting flue 2 with flues 3 and 4 in parallel so that the gases leaving flue 2 are split at this point, part of them passing through flue 3, and part of them through flue 4, with the gas entering at burners, 9, and 10, and burned in these flues, and the products of combustion thereof.

After passing through flues 3 and 4, the products of combustion drop through openings 15, 16 and 17, and are distributed between the two lower flues, 5 and 6. From the flues, 5 and 6, with which they are thus connected in parallel the products of combustion pass, through openings, 18, 19, out of the heating flue system into the sole flue underneath the oven, and to the chimney, in the usual manner.

The proportion of gas passing through any flue may be adjusted by means of dampers 20, 21, 22, 23.

The arrows indicate the direction and courses of the gases.

I do not limit my invention to the precise arrangement of flues and openings shown, as the flues may be arranged in parallel throughout, or only in part, according to the size of the oven and the special conditions to be considered, as will be well understood by those skilled in the art.

It will be evident that with the arrangement of flues shown, the velocity of the gases in the lower flues will be only one-half as great as it would if the flues were all connected in series, with a corresponding decrease in friction, and in the draft required to overcome the friction.

What I claim as new and desire to secure by Letters Patent is:

1. A retort coke oven provided with a series heating flue system, comprising a plurality of flues disposed parallel to one another, certain of said flues being connected with a greater number of succeeding flues,

said succeeding flues being connected in parallel, the carrying capacity of said parallel connected flues, adjacent to the delivery end of the flue system being greater than the carrying capacity of the flue system at its inlet end, and means for introducing quantities of fuel at different points between the inlet and discharge ends of the flue system.

2. A retort coke oven provided with horizontal, superimposed flues, a burner discharging into a single flue, said single flue being connected with a plurality of succeeding flues which are connected in parallel, and additional burners for augmenting the products of combustion, discharging into the flue system adjacent to the points of communication between said parallel connected flues, the carrying capacity of said parallel connected flues, at the discharge end of the flue system being greater than the carrying capacity of the flue system at its inlet end.

3. A retort coke oven provided with a series heating flue system comprising a plurality of flues disposed parallel to one another, certain of said flues being connected with a greater number of succeeding flues which are connected in parallel, the carrying capacity of said parallel connected flues adjacent to the delivery end of the flue sys-

tem being greater than the carrying capacity of the flue system at its inlet end, means for introducing quantities of fuel at different points between the inlet and discharge ends of the flue system and dampers controlling the communication between the said capacity increasing parallel flues and the preceding flues.

4. A retort coke oven provided with horizontal superimposed flues, a burner discharging into a single flue, said single flue being connected with a plurality of succeeding flues which are connected in parallel, and said plurality of parallel connected flues being connected with succeeding flues which are also connected in parallel, and additional burners discharging into the flue system at different points therein, the carrying capacity of said parallel connected flues at the discharge end of the flue system being greater than the carrying capacity of the flue system at its inlet end.

In testimony whereof, I have hereunto subscribed my name, this 17th day of February, A. D. 1909.

WILLIAM H. BLAUVELT.

Witnesses:

JOHN R. WICKES,
WILLIAM A. SHYER.