

J. A. HERRICK.
GAS VALVE.
APPLICATION FILED JUNE 1, 1910.

1,057,833.

Patented Apr. 1, 1913.

3 SHEETS—SHEET 1.

Fig- 3-

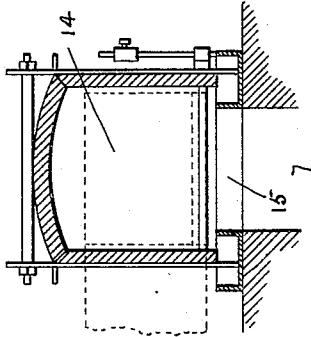


Fig- 1-

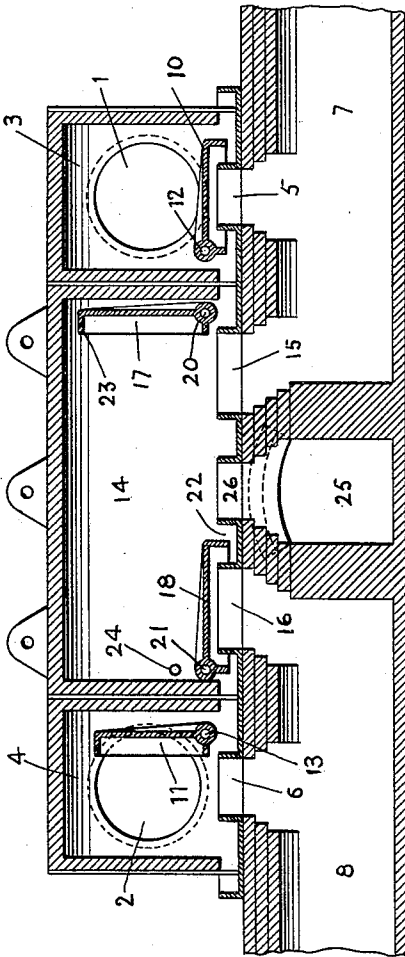
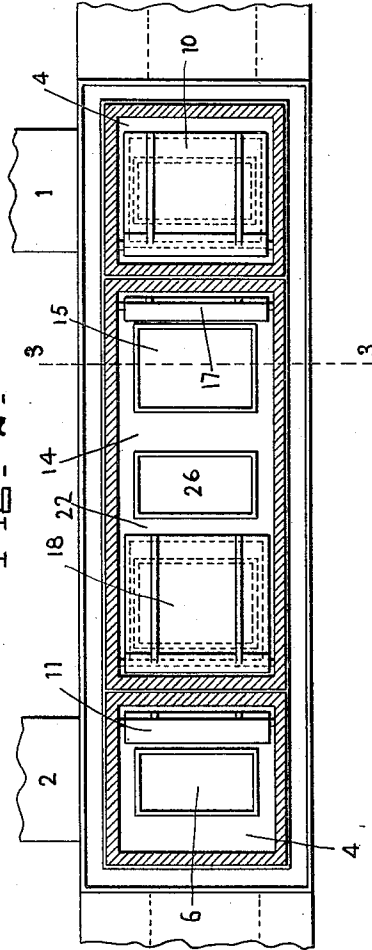


Fig- 2-



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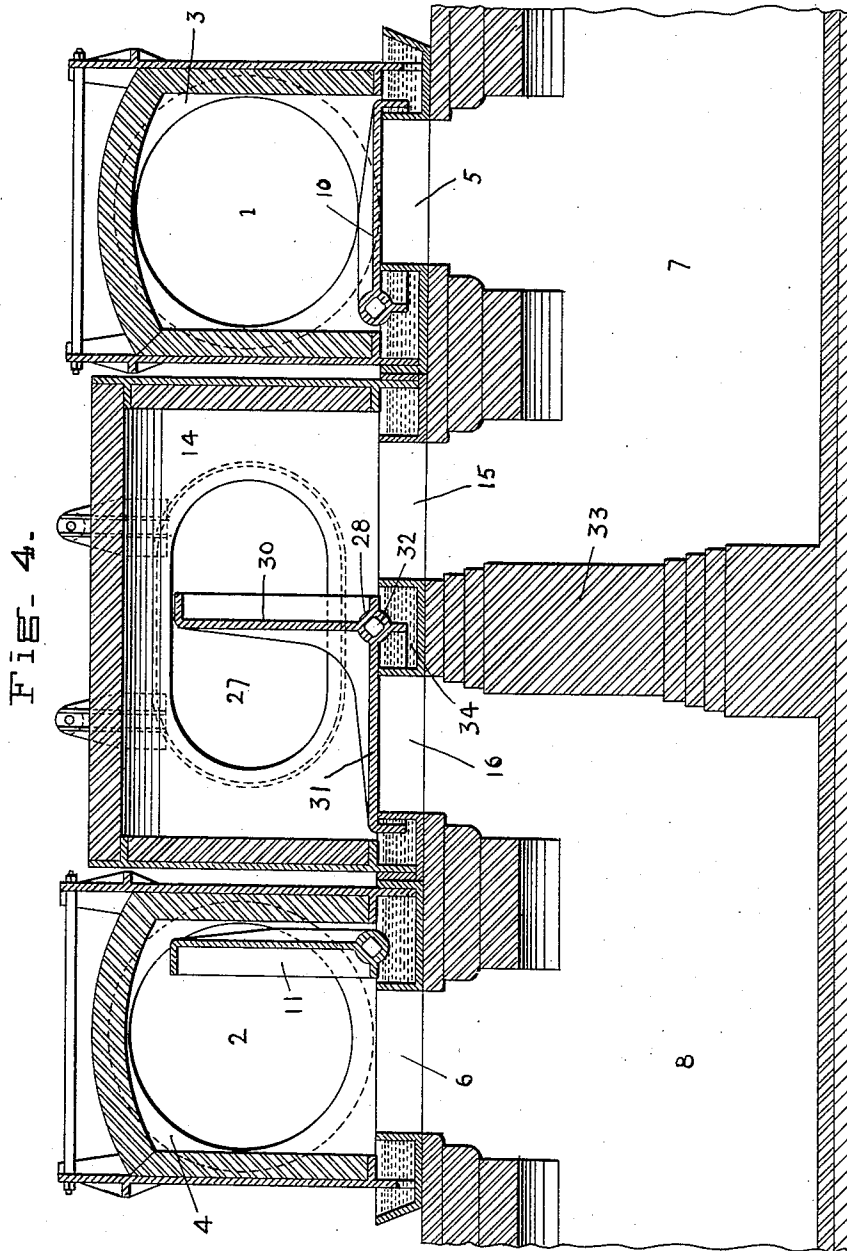
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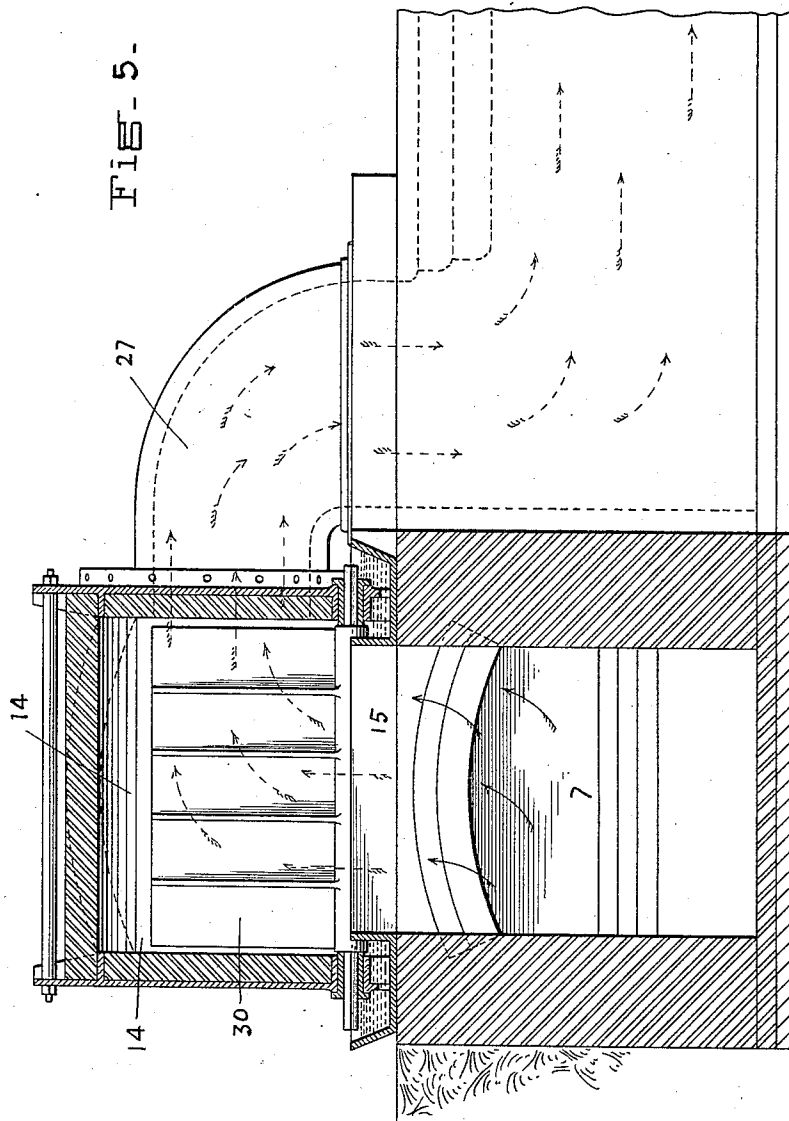
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3 SHEETS-SHEET 3.



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UNITED STATES PATENT OFFICE.

JAMES A. HERRICK, OF NEW YORK, N. Y.

GAS-VALVE.

1,057,833.

Specification of Letters Patent.

Patented Apr. 1, 1913.

Original application filed July 15, 1909, Serial No. 507,725. Divided and this application filed June 1, 1910. Serial No. 564,446.

To all whom it may concern:

Be it known that I, JAMES A. HERRICK, residing at New York, in the county and State of New York, have invented certain new and useful Improvements in Gas-Valves, of which the following is a specification.

This invention relates to producer gas apparatus and is a division of my application filed July 15th, 1909, Serial No. 507,725, for gas producer apparatus.

One of the objects of the invention is to provide new and improved valve mechanism adapted to be used for gas producing and gas consuming apparatus.

Another object is to provide improved means whereby the valve mechanism may be kept cool and thereby prevented from becoming burned out.

Another object is to provide a valve construction such that the furnace is at all times in direct communication with the stack.

Other objects will be in part obvious, and in part specifically referred to.

The invention accordingly consists in the features of construction, combinations of elements and arrangements of parts, which will be exemplified in the construction hereinafter described, and the scope of the application of which will be indicated in the appended claims.

In the accompanying drawings wherein is illustrated two preferred forms of embodiments of my invention; Figure 1 is a view in vertical section of a preferred embodiment of the same; Fig. 2 is a horizontal sectional view looking downward; Fig. 3 is a view taken substantially on the line 3—3 of Fig. 2; Fig. 4 is a view in vertical section of another embodiment of my invention; and Fig. 5 is a view partly in vertical section and partly in elevation of the embodiment shown in Fig. 4.

Similar reference characters refer to similar parts throughout the several figures of the drawings.

Referring now to the drawings and particularly to the embodiment illustrated in Figs. 1 to 3 inclusive 1 and 2 respectively indicate conduits which may extend from a gas producer or any suitable source of gas supply. These conduits lead into compartments 3 and 4 provided respectively with passage ways 5 and 6 which lead into conduits 7 and 8 each of which is adapted to be connected with a gas utilizing apparatus

such as a furnace. Passage ways 5 and 6 are adapted to be closed as by means of valves 10 and 11 mounted to swing upon supports 12 and 13 as shown. 14 denotes a valve chamber which is connected with the conduits 7 and 8 as by means of passage ways 15 and 16, said passage ways being adapted to be closed by means of swinging valves 17 and 18 mounted upon supports 20 and 21. These valves may be connected to move in unison and in alternation, so that when one passage way is closed the other is open; valves 10 and 11 being adapted to be similarly connected. Valves of each pair comprising those designated at 11 and 17, and 12 and 18, may be connected to a single operating rod and actuated by a single lever. The bottom wall of chamber 14 is provided with channels as at 22 adapted for containing water which keeps the various parts cool and into which dip the flanges 23 of the valve. The valve may be cooled if desired by means of water pipes 24 which may be provided with a plurality of small apertures through which water may be distributed upon the bed. Valve chamber 14 connects with the stack 25 as by means of the passage way 26. When the parts are in the position shown in the drawings gas is discharged through conduit 2 into compartment 4 whence it passes through passage way 6 which leads to the furnace or other gas utilizing apparatus, and the products of combustion return through conduit 7 and into valve chamber 14 through conduit 26 and is then discharged into the stack through the passage way 25. When the valves 11, 12 and 17, 18 occupy their opposite directions, the direction of the flow of gas and of the products is in the opposite direction through the apparatus; the products of combustion entering the valve chamber 14 through the passage way 15 to be discharged into the stack through the passage way 25.

The embodiment of my invention shown in Figs. 4 and 5 differs from the one above described in that the stack 27 is taken off from the rear portion of the valve chamber 14 and instead of having independent valves for the passage ways 15 and 16, a unitary structure is provided as at 28 comprising two valve members 30 and 31, mounted upon the support 32 carried by the upright 33, said support being located immediately above a water bath provided in the channel

34 whereby the parts are cooled. The operation of this embodiment of my invention is similar to that just described, it being understood that when the valve 11 is open and valve 10 closed, the gas will enter through conduit 2 and be discharged from the furnace through conduit 7 into valve chamber 14 and out of the stack 27; valve member 31 preventing the passing of the products of combustion into the conduit 8, and valve member 30, allowing the products of combustion to flow through the passage way 15. When the valves are reversed the flow of gas and escaping products of combustion are in the opposite direction to the entire apparatus.

Accordingly it will be seen that I have provided an apparatus particularly well adapted to attain, among others, all the ends and objects above enumerated in a simple yet efficient manner.

It will be observed that by means of the above described construction, the stack is at all times in direct communication with the furnace, and any tendency toward explosion or "kick backs" when the valves are reversed is entirely eliminated.

As many changes could be made in the above construction and many apparently widely different embodiments of this invention could be made without departing from the scope thereof, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense. It is also to be understood that the language used in the following claims is intended to cover all of the generic and specific features of the invention herein described and all statements of the scope of the invention, which as a matter of language, might be said to fall therebetween.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is:

1. In an apparatus of the class described, the combination of a structure having a generally flat top comprising a horizontally disposed stack flue having an opening in its top, and conduits on opposite sides of the stack flue, there being two openings in the top of each conduit, a water seal base resting upon the flat top of said structure and being flanged in registry with the several openings aforesaid, a separate valve box for the end opening of each of said conduits, said valve boxes resting in and being sealed by the water seal, each of said valve boxes being provided with a swinging valve adapted to close said opening and to be sealed by said water seal, and a third valve box supported in the water seal and covering the two inner openings of said conduits, there being means provided for opening or

closing either one of said openings, said valve means being sealed by said water seal, there being a gas inlet into each one of said two last named valve boxes.

2. In an apparatus of the class described, the combination of a casing comprising a horizontally disposed stack flue extending transversely thereof, a pair of conduits extending outwardly and horizontally in opposite directions lengthwise of the casing and disposed at right angles to said stack flue, each of said conduits being adapted to conduct gas to consuming apparatus or products of combustion therefrom, a valve chamber located above the stack flue and connected therewith by an open passage way, passage ways connecting each of said conduits with said valve chamber, a swinging valve for each of said last named passage ways, a valve chamber located above each of said conduits, a passage way connecting each conduit with one of said last named valve chambers, a swinging valve for each of said last named passage ways, and a gas supply conduit leading into each of said last named valve chambers, all of said passage ways having mouths lying in substantially a common horizontal plane.

3. In apparatus of the class described, a generally hollow structure providing a pair of conduits, both of which are in communication with a furnace to conduct gas to the latter or to receive combustion-products therefrom, said structure having a water-sealed valve-controlled opening for each conduit, said opening being at a common level, gas-supply means delivering at said openings; said structure having also a pair of water-sealed valve-controlled openings, one for each conduit, all said openings being at a common level, and a stack-flue adapted to communicate with either one of said last-named openings.

4. In apparatus of the class described, a generally hollow structure providing a pair of conduits, both of which are in communication with a furnace to conduct gas to the latter or to receive combustion-products therefrom, said structure having a water-sealed valve-controlled opening for each conduit, said openings being at a common level, gas-supply means delivering at said openings; said structure having also a pair of water-sealed valve-controlled openings, one for each conduit, all said openings being at a common level, and a valve-box into which said last named pair of openings gives, said structure being provided with a stack-flue that opens into said valve-box.

5. In apparatus of the class described, a central valve chamber, a central stack connected with said chamber by a constantly open port, a pair of conduits, both of which are in communication with a furnace to conduct gas to the latter or to receive com-

bustion products therefrom, each conduit communicating with said chamber through a valve-controlled port, and a pair of gas conduits each of which has an opening into one of said furnace conduits, all of said ports and openings being at a common level.

6. In apparatus of the class described, a generally hollow structure providing a pair of conduits, both of which are in communication with a furnace to conduct gas to the latter or to receive combustion-products therefrom, there being a valve-controlled opening for each of said conduits, a valve

box covering said openings, a stack-flue communicating with said chamber by a constantly open port, and a pair of stationary independent gas chambers each opening into a corresponding furnace-conduit and delivering gas to the respective furnace conduits in alternation.

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

JAMES A. HERRICK.

Witnesses:

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M. A. BUSCHER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."