943,332.

B. M. ASLAKSON.

GAS PRODUCER VALVE.

APPLICATION FILED JAN. 16, 1908.

Patented Dec. 14, 1909.

2 SHEETS—SHEET 1.

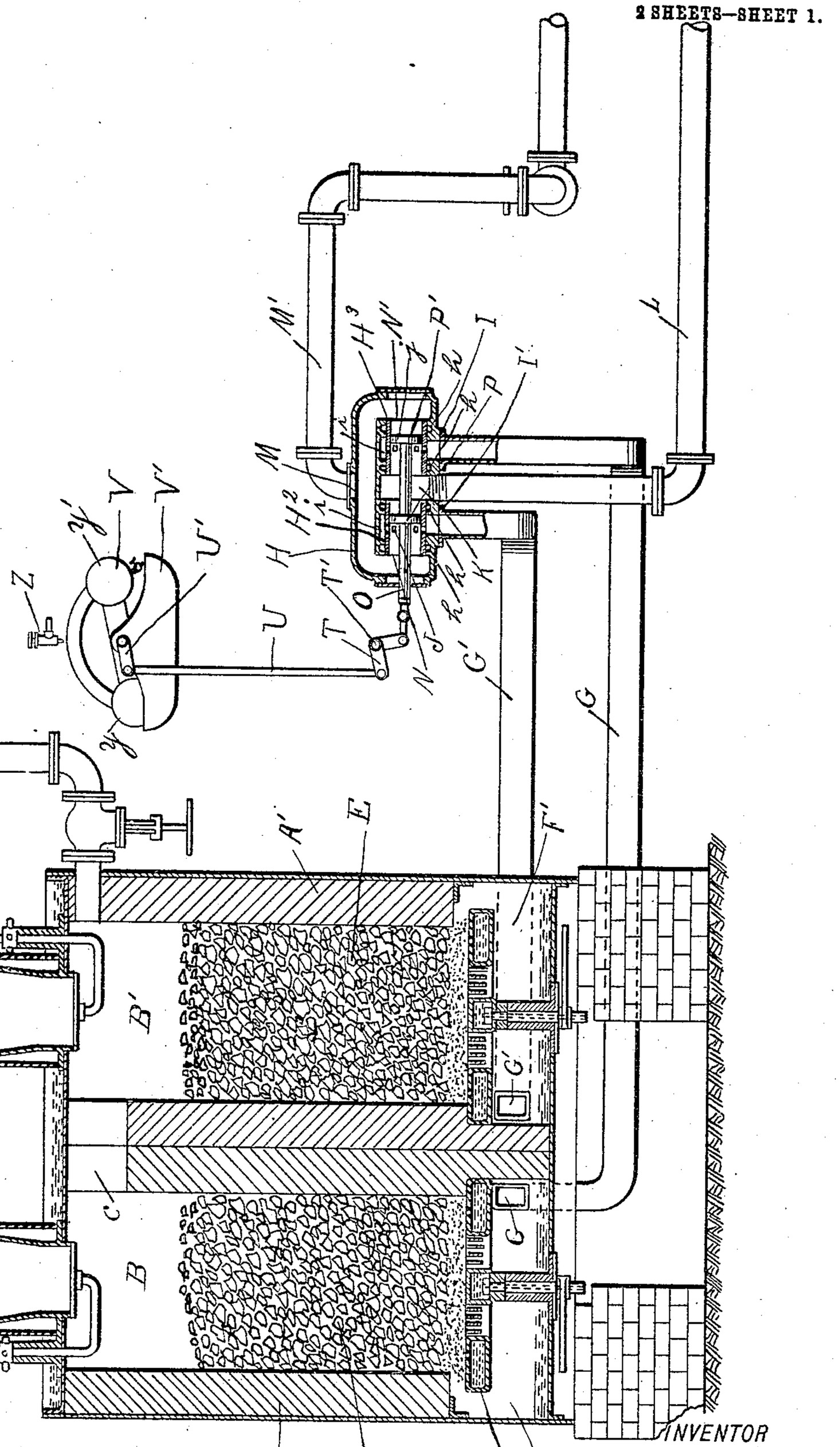

Fig. 1.

WITNESSES

St. L. Crocker

L. Th. van Haaften.

INVENTOR

Baxter M. Aslakson

BY

Frank D. Ashley

ATTORNEY

B. M. ASLAKSON.

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2 SHEETS—SHEET 2.

Fig. 2.

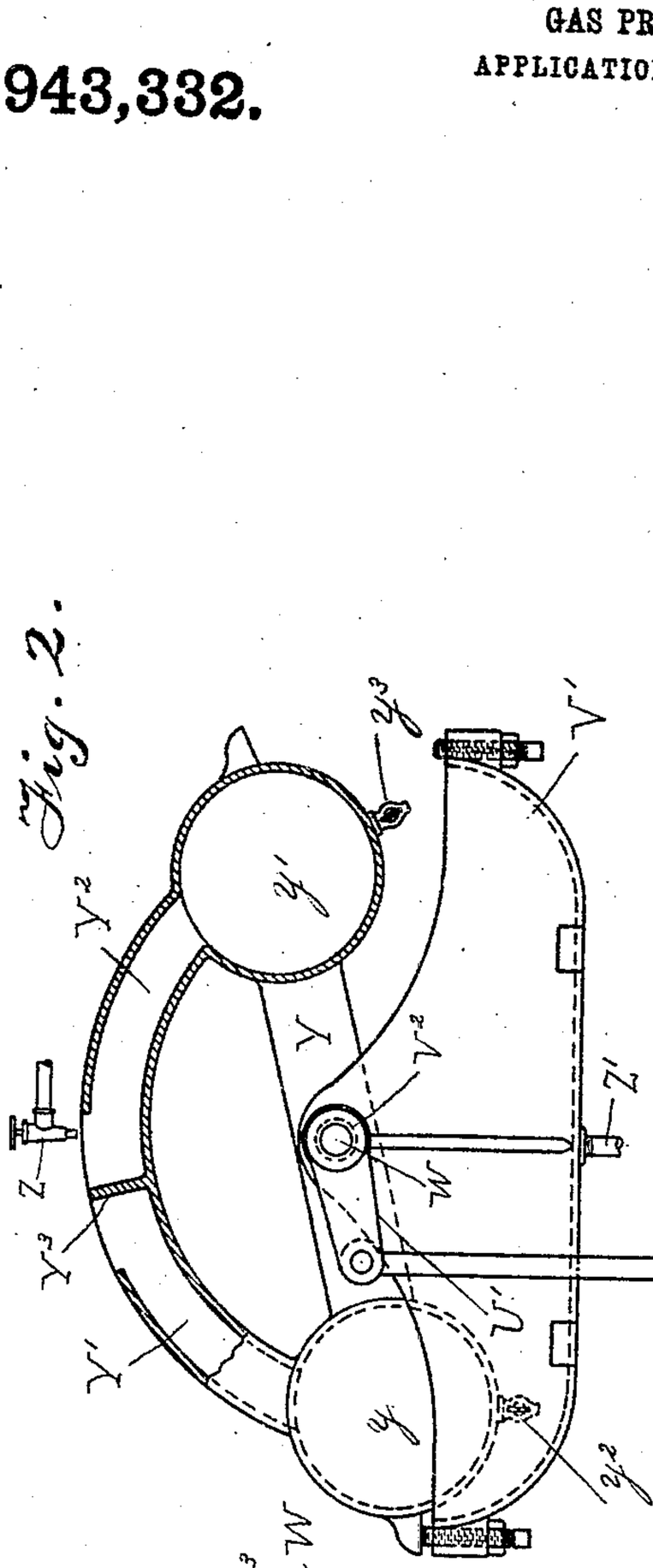
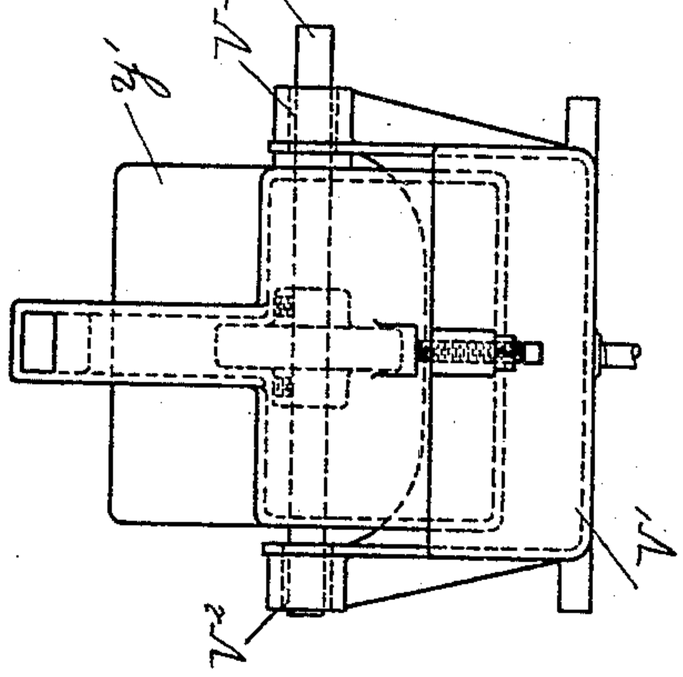


Fig. 3.



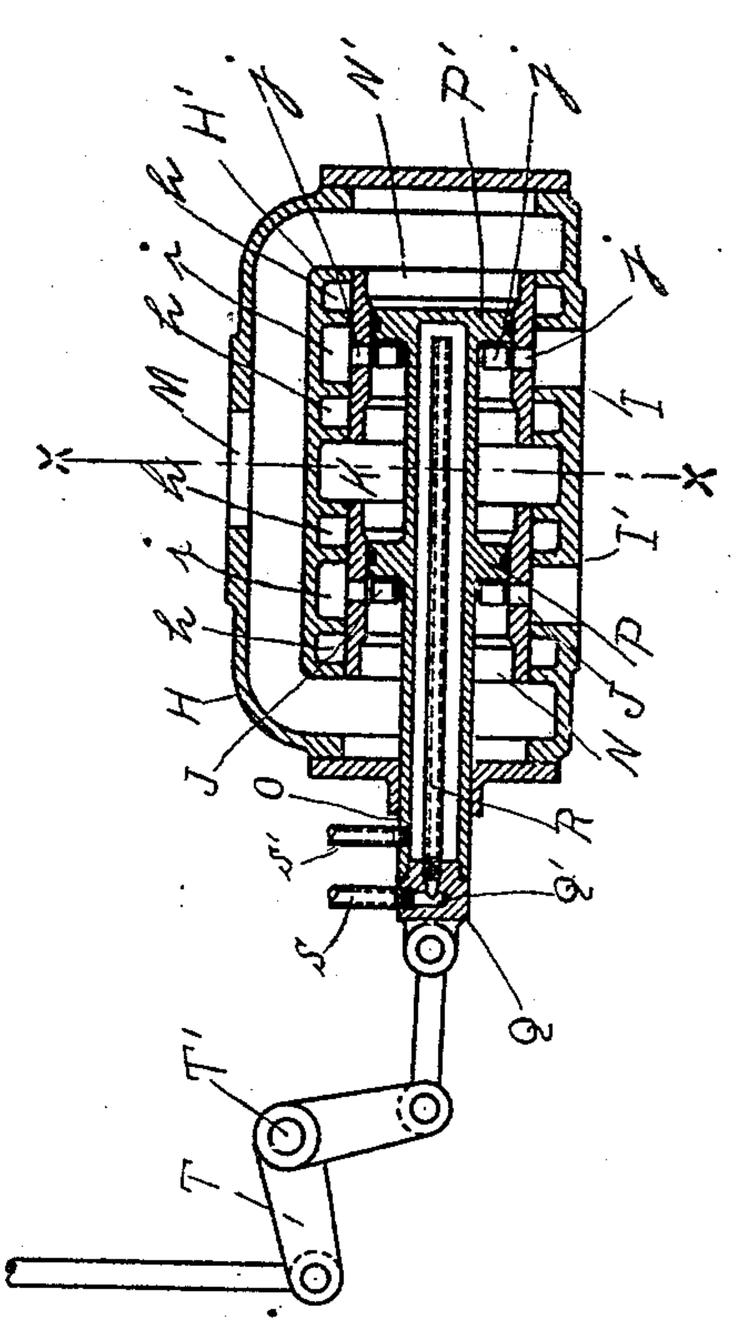
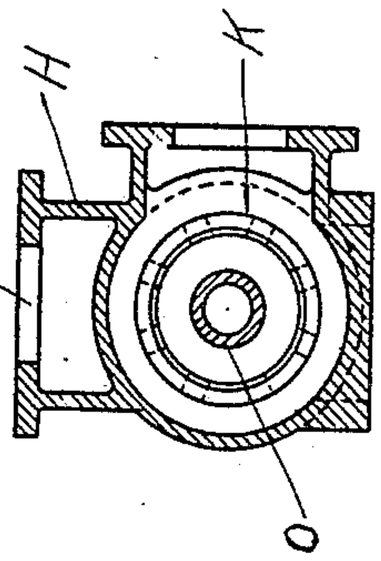


Fig. 4.



WITNESSES:

L. H. van Vaeften.

Virginia Geis.

INVENTOR

Baxter M. Aslakson

BY

Frank D. Ashley

ATTORNEY

ANDREVA B. GRAHAM CO., PHOTO-LITHOGRAPHERS, WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

BAXTER M. ASLAKSON, OF SALEM, OHIO.

GAS-PRODUCER VALVE.

943,332. Specification of Letters Patent. Patented Dec. 14, 1909.

Application filed January 16, 1908. Serial No. 411,049.

To all whom it may concern:

Be it known that I, BAXTER M. ASLAKSON, a citizen of the United States, and residing at Salem, Columbiana county, Ohio, have invented certain new and useful Improvements in Gas-Producer Valves, of which the following is a specification.

My invention relates to gas producers and particularly to a valve used to reverse the direction of gases flowing through the producer and means for operating same.

The object of my invention is to provide a valve that will require little power to operate, and means of simple and durable construction for automatically operating same, the operating medium of which is afterward utilized in the vaporizer of the gas plant, so that the valve is operated without expense.

A further object is to provide a construction of valve which may be kept properly cooled by providing same with water conduits of suitable dimensions through which water may be forced.

Referring to the drawings which form a part of this specification,—Figure 1, is a vertical sectional view of a gas producer of the character in connection with which my valve is used, and a similar view of the valve, and an exterior view of the valve operating means. Fig. 2, is a sectional view of the valve on a larger scale than that shown in Fig. 1, and the valve operating means or regulator is shown partly in section. Fig. 3, is an end view of the regulator, and Fig. 4, is a cross sectional view on line X—X of the valve shown in Fig. 2.

A and A′, indicate a pair of gas producers set side by side, with their gas chambers B and B′ connected by a passage C. Each producer is provided with a separate grate D and D′ respectively, on which the coal E rests, and below each grate is a chamber F and F′ respectively, which is in open communication with a conduit G and G′ respectively, the other end of which is connected to the valve casing H at I and I′ respectively. The casing H consists of a shell having a cylindrical casing H′ located therein and preferably formed integral therewith. The interior of the wall of casing H′ is provided with a number of annular grooves, one side of which is closed by the lining members H^2 and H^3 respectively, thus forming chambers *h*—*h*—*h*—*h*, through which water is forced to keep the lining members H^2 and H^3 cool. Annular conduits *i* and *i*′, are also formed between the casing H′ and lining members H^2 and H^3, which are in open communication with conduits G′ and G respectively, through ports J—J and *j*—*j* respectively, located in the lining members. A chamber K is formed in the casing H′ at its center, which is in open communication with one end of a pipe L, the other end of which is connected to the air conduit in the vaporizer of the plant. An outlet M, is located in the top of the casing H, and a pipe M′ is connected to said casing and conducts fluids from said outlet to the scrubber of the plant. Located in the cylinders N and N′ formed in said lining members H^2 and H^3 respectively, is a valve rod O, on which is located pistons P and P′ respectively, spread apart so that piston P will be to the right side of ports J—J, and piston P′ to the right side of ports *j*—*j*, when the rod is thrown to the extreme right hand position, and will cross said ports and stand to the left hand side of said ports respectively, when said rod is thrown to the extreme left hand position.

Referring particularly to the valve as illustrated in Fig. 2, the valve rod is shown in longitudinal section and is formed hollow, one end being closed by a screw plug Q, having a conduit Q′, which is in open communication with a pipe R, which is screwed into plug Q, and is of considerably less diameter than the internal diameter of valve rod O, so that water forced into pipe S, will flow through conduit Q′ and pipe R into rod O, and back in contact with the interior surface thereof to the outlet pipe S′, thus cooling the rod and pistons, as will be easily understood. Water is also forced through chambers *h*—*h*—*h*—*h*, through inlets and outlets located on the near side of casing H, (not shown) as will be readily understood by a person skilled in this art.

Connected to rod O by link connection, is a bell crank lever T, which is fulcrumed at T′, and its other end is connected to a rod U, which extends to the crank U′, which is operated by the regulator V. This regulator comprises a trough shaped body portion V′, having bearings at V^2 and V^3, in which the ends of a shaft W rest. Mounted on this shaft is a casing Y, having a reservoir *y* and *y*′ respectively, mounted at each end, each of which are provided with outlet cocks y^2 and y^3 respectively. Connected to said reservoirs *y* and *y*′ are conduits Y′ and

Y^2, divided by a partition Y^3, each conduit having an inlet located adjacent to said partition, through which water from cock Z may flow to either reservoir y or y', depending on the position of the inlets to the conduits Y^2 and Y^3, relative to the stationary cock Z.

The operation of the regulator and valve is as follows: Assuming the valve and regulator to be in the position shown, with the valves P and P′ resting at the right hand side of the ports J, j, respectively, the engine in operating would draw air from the vaporizer through pipe L to chamber K through ports P′ to conduit G, to chamber F, and through grate D and fuel E to chamber B, and through conduit C to chamber B′, through fuel E to chamber F′ to conduit G′, through ports J to the interior of the casing H, and thence through pipe M′ to the scrubber, and therethrough on its way to the engine. During this period water is flowing from cock Z into conduit Y^2 of the regulator, and therethrough to the reservoir y', until the amount of water in said reservoir is sufficient in weight to over-balance the weight of the reservoir y, when it will drop to its lowest position, thereby raising lever U′ and reverse the position of the valves P and P′, relative to the ports J, J, and j, j, respectively, so that the pistons will stand at the left side of said ports. This movement immediately reverses the direction of the flow of air and gases through the chambers B and B′, since the gases will now flow from pipe L through ports J and conduit G′ to chamber F′, and through the grate to chamber B′, through conduit C to chamber B, and through fuel E and grate D to chamber F, and to conduit G, into casing H, and therefrom to pipe M′, and thence to the scrubber, as previously described. The water cocks y^2, y^3, of the regulator are adjusted to discharge the water from the reservoirs y and y', respectively, into the trough of the casting V′, whence they will flow through outlet Z′. The inlet cock Z controls the flow of water and the amount admitted to the reservoirs y and y' is gaged to effect a reversal of the valve at predetermined intervals, as will be readily understood.

It will be noted that by this construction of valve the pressure of the pistons is balanced, and therefore, a comparatively small amount of power serves to operate the valve.

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

1. A valve of the character described comprising a casing having a second casing formed therein, in which are formed annular chambers to serve as cooling chambers, ports formed in said second casing, a valve controlling said ports, and means for automatically actuating said valve.

2. A valve of the character described, comprising a casing having a second casing formed therein, in which are formed annular chambers to serve as cooling chambers, ports formed in said second casing, a valve controlling said ports, and having a cooling chamber formed therein: and means for conducting a cooling fluid from the exterior of said casing to within said last named chamber and causing same to circulate therein and to conduct said fluid therefrom through a separate outlet.

3. A valve of the character described, comprising a casing having a second casing formed therein in which are formed annular chambers to serve as cooling chambers, ports formed in said second casing, a valve controlling said ports, and having a cooling chamber formed therein: and a tube extending into said chamber and forming an annular passage provided with an outlet from said chamber.

4. A valve of the character described, comprising a casing having a second casing formed therein, in which are formed annular chambers to serve as cooling chambers, ports formed in said second casing, a valve controlling said ports, and having a cooling chamber formed therein: and means for operating said valve automatically at predetermined intervals of time.

5. A valve of the character described, comprising a casing having a second casing formed therein, in which are formed annular chambers to serve as cooling chambers, ports formed in said second casing, a valve controlling said ports, and having a cooling chamber formed therein: and means for operating said valve automatically at predetermined intervals of time.

In testimony whereof, I have signed my name to this specification in the presence of two subscribing witnesses, this tenth day of January, 1908.

BAXTER M. ASLAKSON.

Witnesses:

FRANK M. ASHLEY,

A. T. SCHARPS.