No. 863,004. PATENTED AUG. 13, 1907.

H. F. SMITH.

VALVE FOR GAS PRODUCERS.

APPLICATION FILED SEPT. 14, 1906.

3 SHEETS—SHEET 1.

Fig. 1.

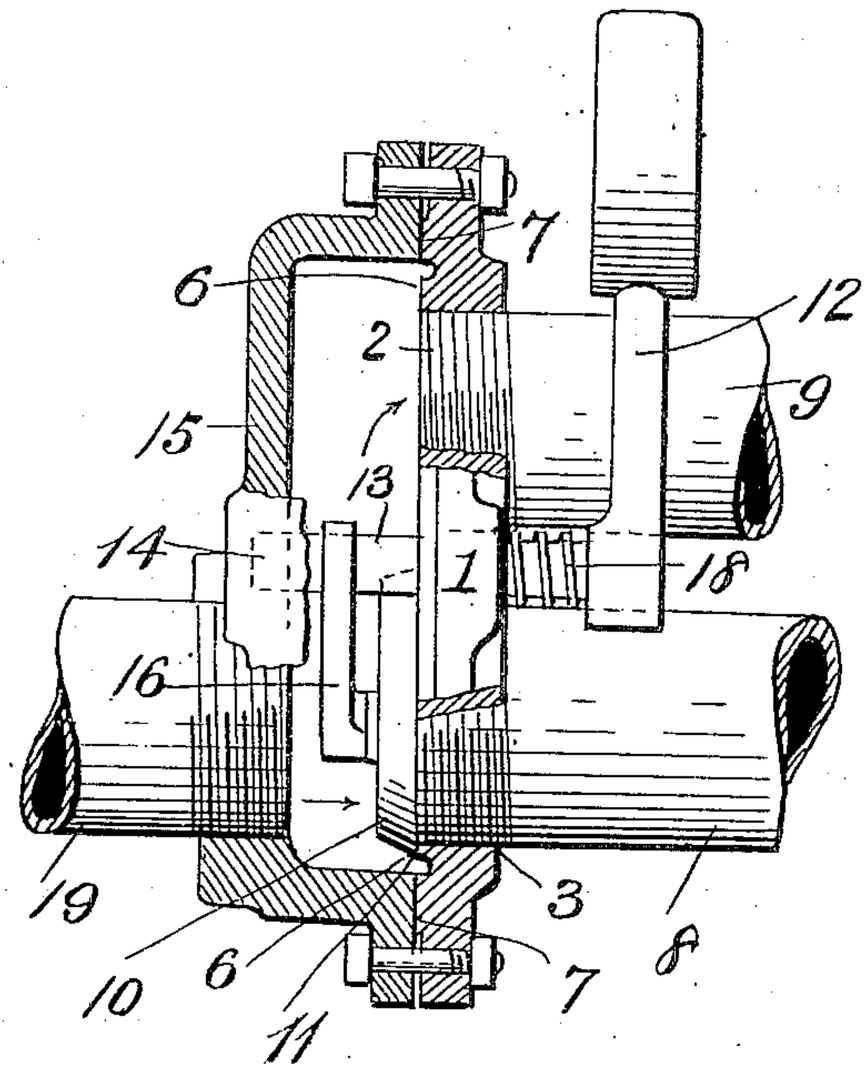
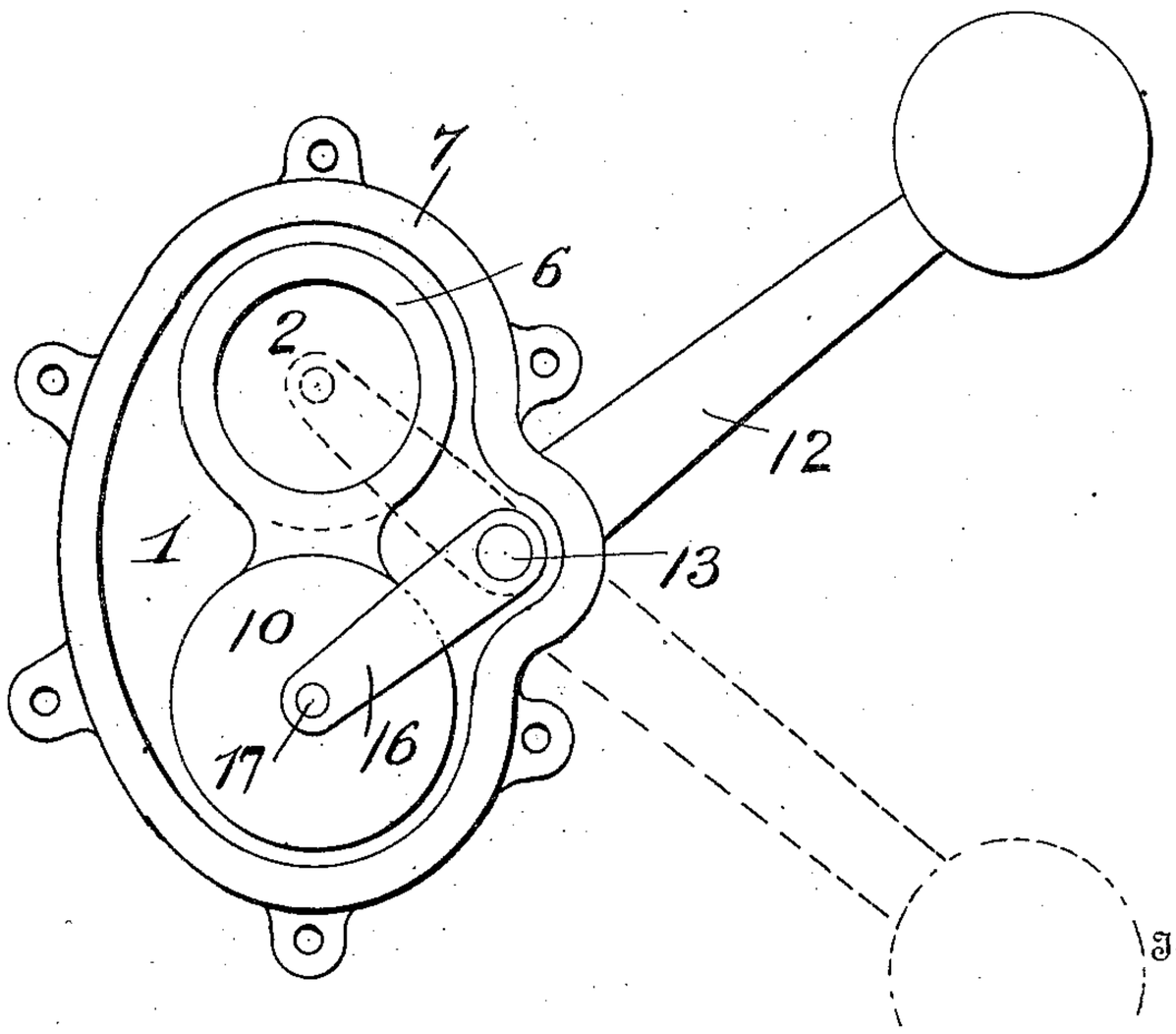


Fig. 2.



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3 SHEETS—SHEET 2.

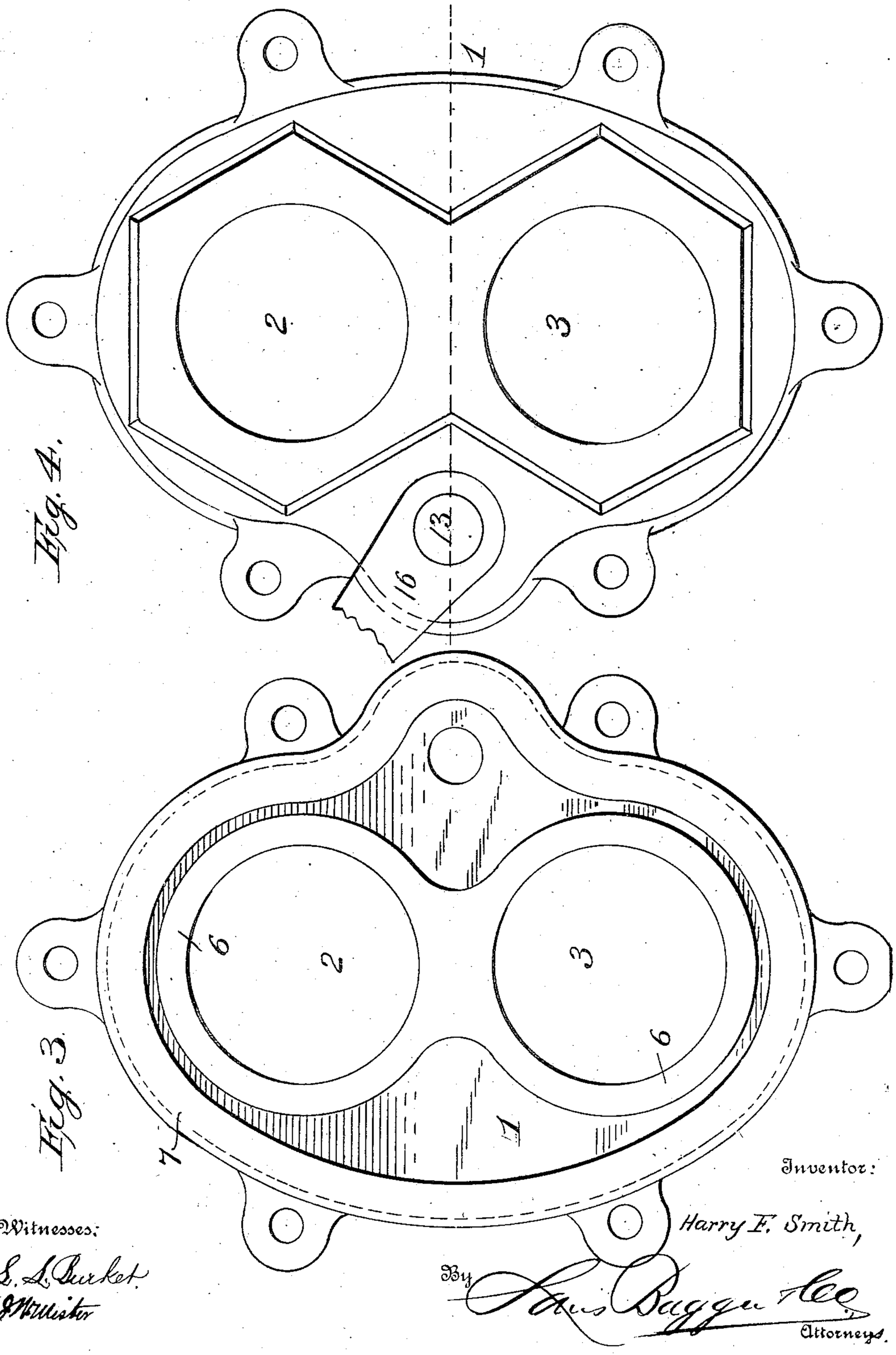

Fig. 4.

Fig. 3.

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3 SHEETS—SHEET 3.

Fig. 5.

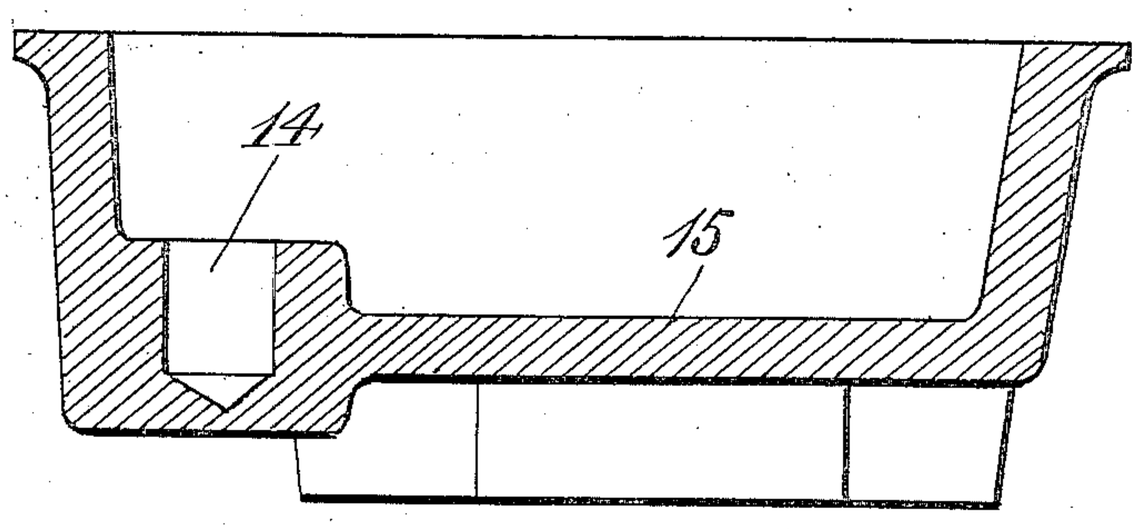
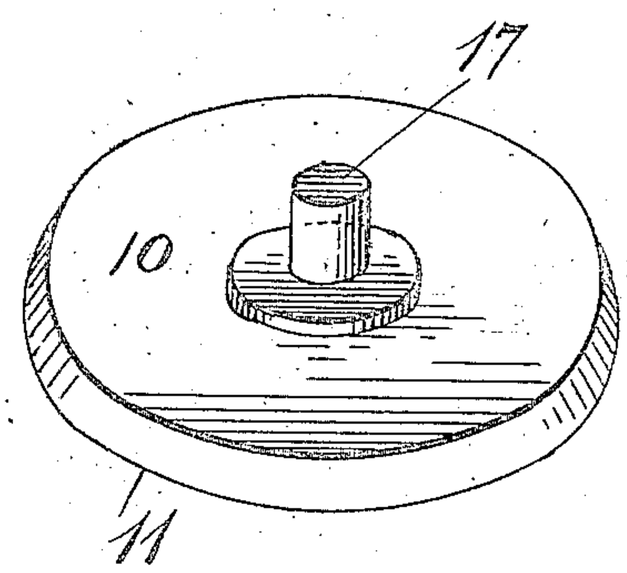


Fig. 6.



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UNITED STATES PATENT OFFICE.

HARRY F. SMITH, OF LEXINGTON, OHIO.

VALVE FOR GAS-PRODUCERS.

No. 863,004. Specification of Letters Patent. Patented Aug. 13, 1907.

Application filed September 14, 1906. Serial No. 334,644.

To all whom it may concern:

Be it known that I, HARRY F. SMITH, a citizen of the United States, residing at Lexington, in the county of Richland and State of Ohio, have invented certain new and useful Improvements in Valves for Gas-Producers, of which the following is a specification.

My invention relates to improvements in valves, applicable to gas producers generally.

Valves of ordinary design do not give satisfactory service when used for producer gas for several reasons: First, owing to the corrosive action of the gas, brass, bronze or copper parts cannot be practically used. Second, in the use of gas valves of the ordinary construction, when left closed for any considerable time, rust fastens the same and they become inoperative. Globe valves cannot be successfully employed since there is always more or less dust present in producer gas, which accumulates upon the seat and is simply compressed and fastened there by the pressure of the valve in closing. When the valve is again opened a part of this deposit adheres to the valve and a part to its seat, so that frequent opening and closing of the valve soon results in making the valve and seat uneven in their contacting surfaces, thus causing serious leakage. Since the pressures employed in producer gas work are never more than a few ounces per square inch, these valves need not be designed for heavy pressure.

The object of my invention is, therefore, to overcome the foregoing objections and to accomplish the same in a simple and effective manner.

Said invention consists of certain features or instrumentalities substantially as hereinafter fully disclosed and specifically pointed out by the claims.

In the accompanying drawings illustrating the preferred embodiment of my invention, Figure 1 is a sectional elevation of certain parts of a gas-producer, with said invention applied thereto, Fig. 2 is a view thereof, with the cover or closure removed, showing the valve proper in position over one port, and a second port uncovered. Fig. 3 is a general like view of the same, with the valve proper also displaced. Fig. 4 is a general similar view taken from the reverse side of the same. Fig. 5 is a transverse central section of the closure. Fig. 6 is a disassembled view of the valve proper.

In carrying out my invention, I provide a plate or valve-seat 1 having ports 2, 3, and suitably adapted for use or application where required upon a gas-producer. Said seat-plate has in the present instance two ports 2, 3 and around their edges is a continuous outstanding or upraised boss or ledge 6, said plate also having beyond and encompassing the aforesaid flange, a rim or flange 7 whose inner surface is in the same plane with the corresponding surface of the boss or ledge 6. Between these ports and pipes 8, 9 connection may be suitably effected, leading to the required points. Upon said seat-plate is adapted to work or slide a valve 10 for controlling either of the ports 2, 3, preferably circular or disk-like and having its face which is trued brought to a sharp edge as at 11 around its entire circumference, whereby it is noted that, with the usual opening and closing movement of the valve or disk it will, in itself, have a scraping action upon said valve-seat and thus provide for the practical automatic cleaning of said seat and accordingly guard against the sticking of the valve from any deposits of gaseous products which would otherwise remain upon the seat.

A suitable handle or lever 12, which may, or may not be enlarged or weighted at its outer end for effective movement, is passed through the seat-plate 1 and has a right-angled integral arm 13, a short distance from its inner end, which end is let into, and bears in a "step" or socket 14 formed in a housing or closure 15 suitably bolted or secured to said plate. Said arm itself, has attached or fixed thereto and at right-angles, a second arm 16, which has its distant end sleeved upon a central outstanding stud or pin 17 of the disk or valve 10, whereby, it is noted that, as the handle or lever 12 is suitably actuated, the valve will be swung from one port to another in alternately covering and uncovering the same, as the requirements of the case may demand.

A spring 18, preferably coiled or helical, is suitably applied to the arm 13 of the lever 12 so as to ultimately deliver its tension or pressure upon the valve or disk 10, for the retention of the latter upon its seat with sufficient force to render the contact therebetween gas or fluid tight and yet allow, by suitably manipulating the lever, the moving of the valve slightly outward from its seat in event of such ever being required.

Suitable pipe connection as at 19 is effected between the gas-producer and the valve casing or housing 15 for controlling the passage of the gas by the valve 10. The pipe connection 9 may be omitted and the valve may serve equally the purposes of my invention, in that case it being styled a "straight-away" valve—as now shown as a three-way valve.

I claim—

1. A device as described, comprising a seat-plate having opposite ports therein and a continuous outstanding ledge serving as a seat around said ports, a valve resting upon said ledge or seat and effective for closing either of said ports, a housing arranged upon said seat-plate, over said ports and valve, a handled lever bearing in said housing and stepped in said seat-plate, said lever having a lateral arm with a right-angled terminal sleeved upon an outstanding central stud of said valve.

2. A device as described, comprising a seat-plate having opposite ports therein and an outstanding continuous ledge forming a valve seat around said ports, a valve effective for closing either of said ports and resting upon said ledge or seat and having an outstanding central stud, a housing for said ports and valve, a handled lever passing through said housing and stepped in said seat-plate and having a lateral arm with a right-angled terminal sleeved upon said stud, and a spring applied to said lever intermediately of its handle and said seat-plate for delivering pressure upon said seat valve and for its effective retention in position.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

HARRY F. SMITH.

Witnesses:
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ANNA EARHART.