

No. 858,987.

PATENTED JULY 2, 1907.

G. L. JONES.
 DUPLEX BLOW-OFF VALVE.
 APPLICATION FILED APR. 4, 1906.

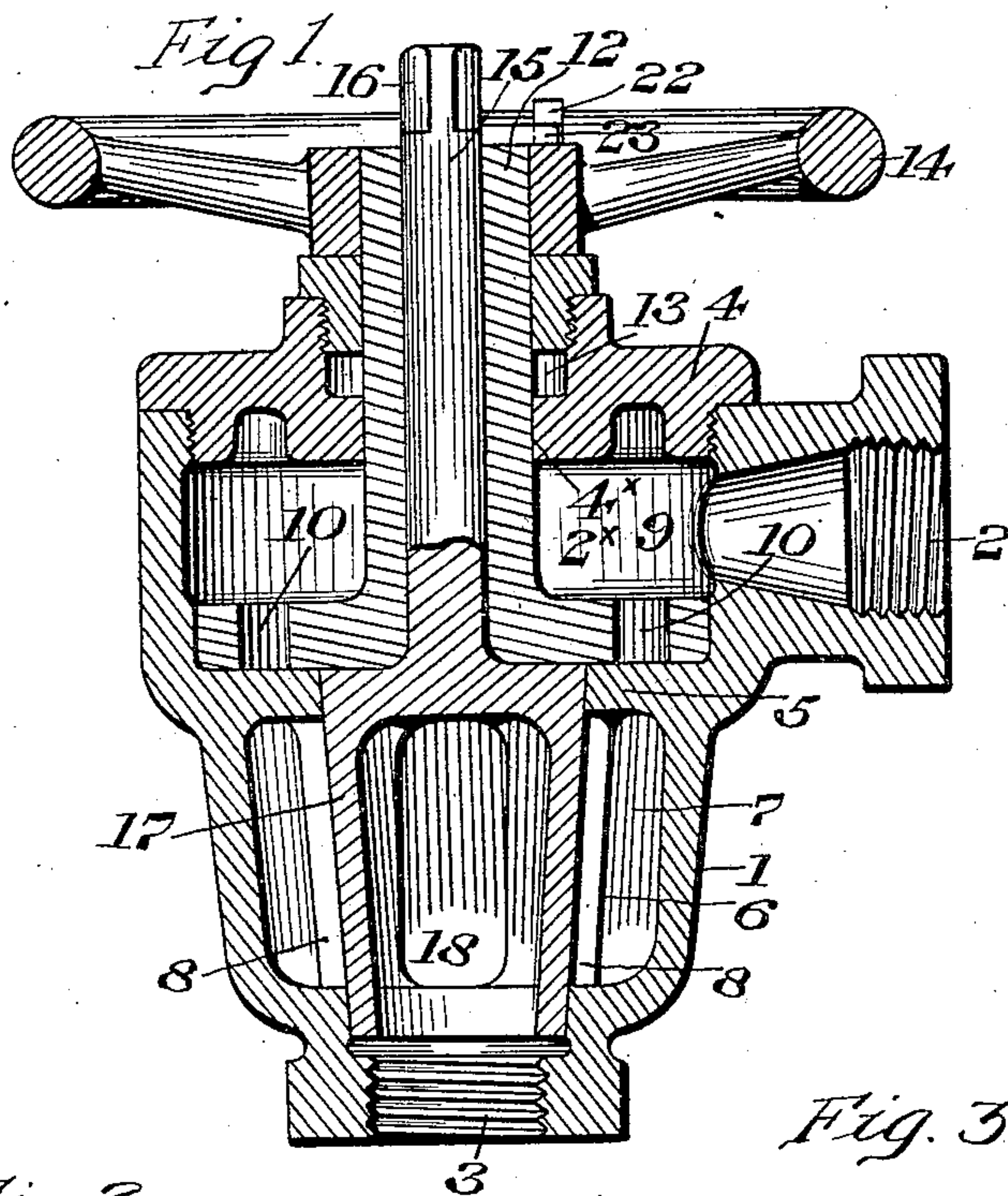


Fig. 3.

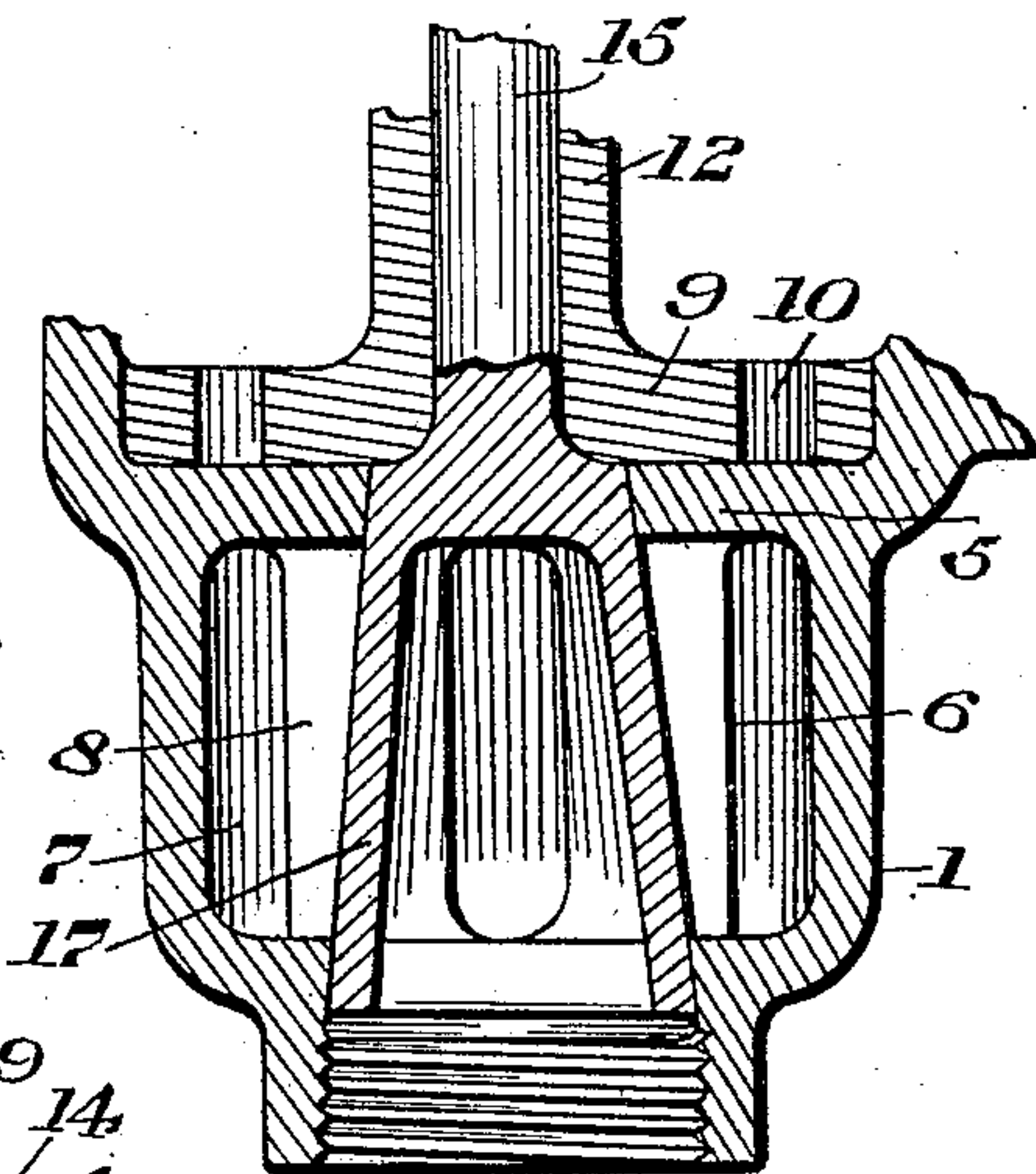


Fig. 2.

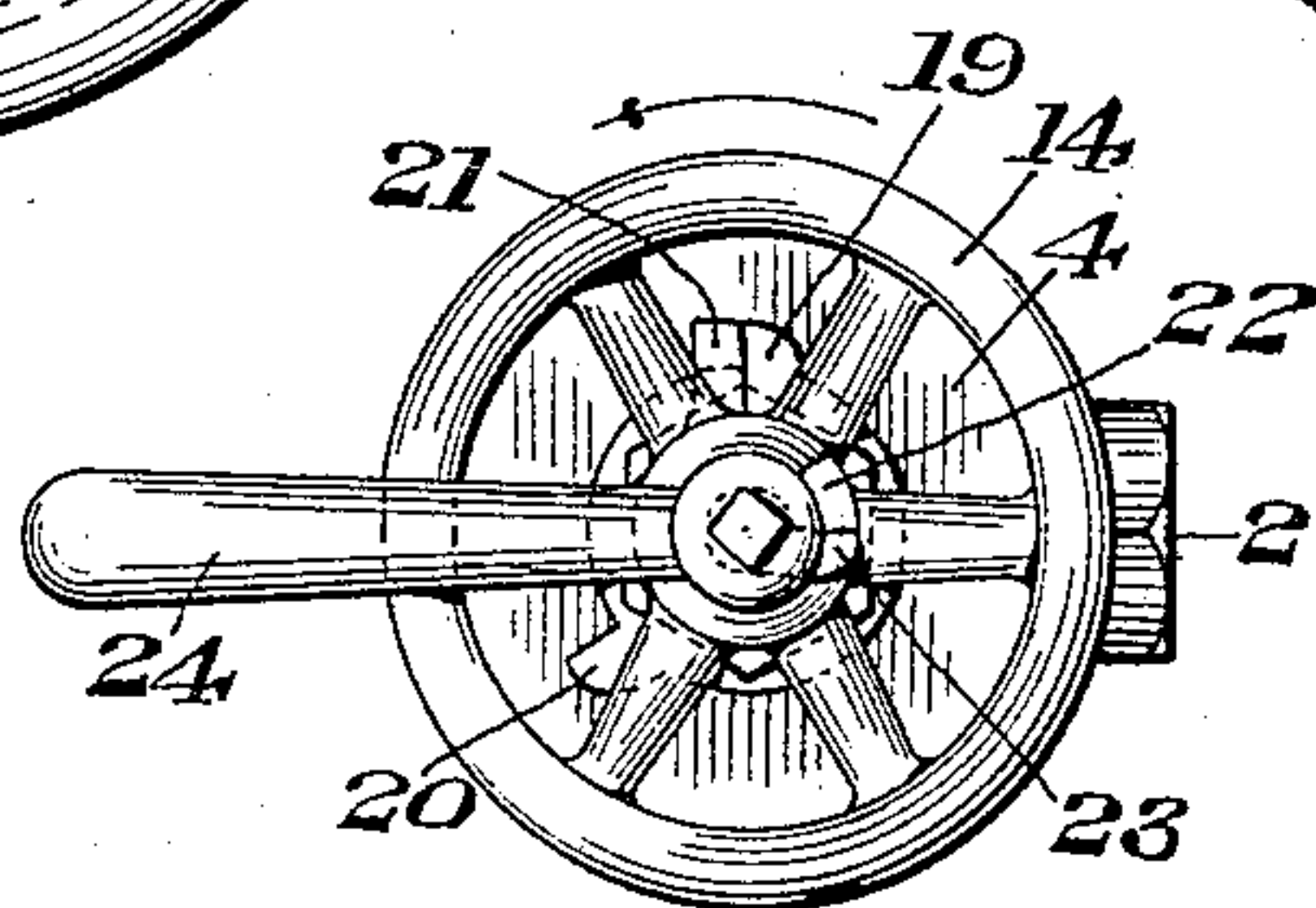
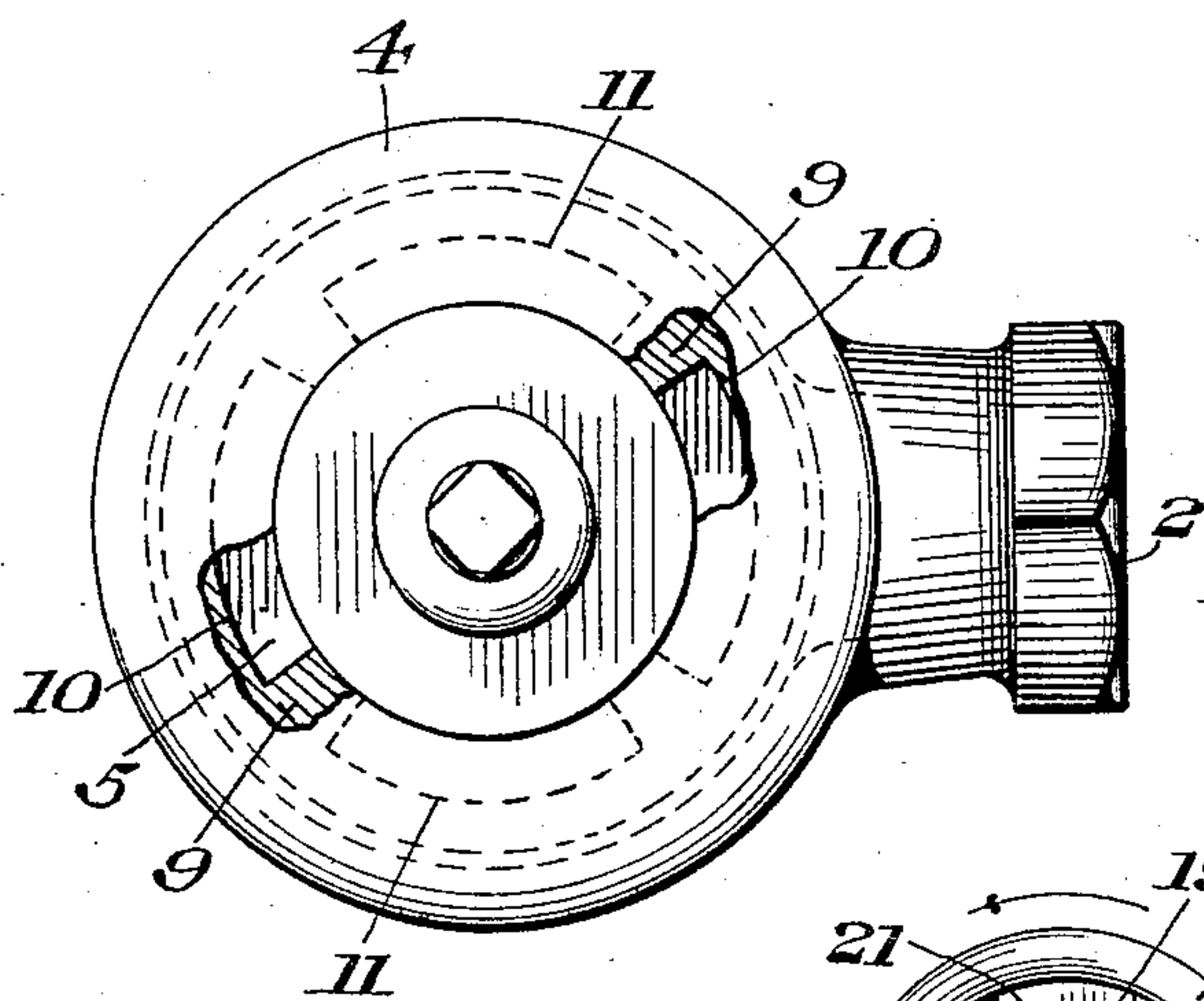


Fig. 4.

WITNESSES:

H. J. Hartman.
P. F. Nagle.

INVENTOR
Giff L. Jones.
 BY *Niedersheim & Hartman*
 ATTORNEYS

UNITED STATES PATENT OFFICE.

GRIFF L. JONES, OF RIDLEY PARK, PENNSYLVANIA, ASSIGNOR OF ONE-HALF TO EDWARD L. DILLMAN, OF JAMAICA, NEW YORK.

DUPLEX BLOW-OFF VALVE.

No. 858,987.

Specification of Letters Patent.

Patented July 2, 1907.

Application filed April 4, 1906: Serial No. 309,865.

To all whom it may concern:

Be it known that I, GRIFF L. JONES, a citizen of the United States, residing at Ridley Park, county of Delaware, State of Pennsylvania, have invented a new and useful Duplex Blow-Off Valve, of which the following is a specification.

My invention relates to a new and useful blow-off valve and cock wherein I provide two valves operated separately.

It further consists in causing the pressure in the blow-off valve, at all times, to be exerted, in such a manner upon one of the valves therein as to tend to seat the same.

It further consists of novel details of construction, all as will be hereinafter fully set forth.

Figure 1 represents a sectional view of a blow-off valve and cock embodying my invention. Fig. 2 represents a plan view, with the wheel omitted for clearness, showing a portion broken away and some of the inner mechanism in dotted lines. Fig. 3 represents a sectional view of a portion of a valve showing a slightly different form of the plug valve. Fig. 4 represents a plan view on a reduced scale showing the stops employed for preventing improper operation of the device and showing a wrench in position on the stem.

Similar numerals of reference indicate corresponding parts in the figures.

Referring to the drawings:—1 designates the casing of the valve having a chamber 2 \times therein and an inlet port 2 and a discharge port 3 therefor.

4 designates a cap or bonnet which is screwed or otherwise secured to the casing 1, said bonnet being provided with a suitable opening 4 \times and with means for receiving suitable packing, hereinafter described.

5 designates an inwardly extending wall or valve seat of the casing having a wall 6 connected or integral therewith, between which and the walls of the casing 1 is formed an annular chamber 7, said wall 6 being provided with suitable ports 8, in the present instance two in number.

9 designates a disk valve which is seated, upon the wall 5 and is rotated thereon, it being understood that the upper face of the wall or valve seat 5 and the lower face of the disk valve 9 are properly ground and scraped in such a manner as to insure a positive steam-tight seat between these parts, to prevent leakage of the fluid, it being noted that the wall or seat 5 divides the annular chamber 7 from the chamber 2 \times of the casing and that said disk valve 9 is provided with the ports 10, in the present instance two in number, which are adapted to register at the proper time with the ports 11 in the wall or seat 5 of the casing, said ports 11 forming a communication between the chamber 2 \times and the annular chamber 7.

By reason of the disk valve 9 being so constructed and arranged with respect to the seat 5, the latter is thoroughly protected at all times and especially when the valve is discharging, thus preventing wear and consequent leakage and making an absolutely tight valve.

12 designates a hollow stem integral with or connected to the disk valve 9, said stem 12 being adapted to pass through opening 4 \times in the bonnet 4 and extends through the stuffing box 13 contained in said bonnet 4. Suitably connected with said hollow stem 12 is the hand wheel 14. Passing through said hollow stem 12 is a stem 15 which is provided with the squared end 16, which extends beyond said hollow stem 12. Integral with or connected to the stem 15 is a plug valve 17, which is provided with ports 18, there being two in the present instance, which are adapted to register with the ports 8 in the wall 6, the lower portion of said plug valve being open and communicating with the discharge opening 3 of the casing.

In order to prevent improper operation or manipulation of the parts and in order to insure the movement of the valves to their proper positions, I have provided the bonnet 4 with a stop 19 and a stop 20 at such points thereon that a stop 21 located on the wheel 14 will contact therewith, in order to prevent further movement of said wheel 14 when the ports 10 in the disk valve 9 are either in open or closed position, that is to say, when the lug 21 is in engagement with the stop 19, the ports 10 in the disk 9 are closed and when the wheel 14 is actuated in the direction indicated by the arrow in Fig. 4 and the stop 21 contacts with the stop 20, the valves 10 will be in proper register with the ports 11 in the seat 5. I also provide the wheel 14 with a lug or stop 22, which moves with said wheel and on the stem 15, I provide a lug or stop 23, which is adapted to contact with the lug or stop 22 as shown in Fig. 4, the said lugs being so placed that when the same are in the position seen in Fig. 4, the plug valve 17 is in the position seen in Fig. 1, that is to say, the ports 8 are closed. It will be noted further that the stem 15 cannot be operated until after the wheel 14 has been operated in order that the stop 22 will be removed from the path of movement of the stop 23 and that after the stop 22 is moved with the wheel 14, a suitable wrench or tool 24 can be connected with the stem 15 and this stem can be rotated until the stop 23 again contacts with the stop 22, at which time the plug valve 17 will be in such a position that the ports 18 will be in register with the ports 8 and that the blow-off valve will be open. In order that the valve can be closed, it will be seen that stem 15 must be first rotated to remove the stop 23 out of the path of the stop 22, or in other words, the plug valve 17 must first be closed before the disk valve is closed.

The operation of the device is as follows:—The parts being in the position seen in Fig. 1, the blow-off valve is closed and the pressure of the fluid passing in the inlet 2 will be upon the top of the disk valve 9 tending to seat the same and hold it in proper position. When it is desired to open the valve the hand wheel 14 is rotated a proper distance in order to turn the stem 12 and with it the disk valve 9 until the ports 10 therein register with the ports 11 in the inwardly extending wall 5, the fluid being thus admitted into the annular chamber 7, it being noted, however, that the pressure still remains upon the top of the disk valve 9. The stem 15 is now rotated in order to cause the plug valve 17 to rotate and cause the openings or ports 18 therein to register with the ports 8, at which time the fluid can pass from the annular chamber 7 through the plug valve 17 to the discharge 3, from whence it can be conducted to any suitable point. When it is desired to close the valve the stem 15 must first be operated to close the ports 8, after which the disk valve 9 is operated to close the ports 11.

The operation of the stops it is believed will be thoroughly understood from the description already given and therefore, I have not repeated the same in the operation.

It will be seen from the construction shown in Fig. 1 that the plug valve 17 is provided with inclined walls to correspond to the inclination of walls 6, the larger portion of the valve in this figure being at the upper side.

In the construction shown in Fig. 3 I have shown the inclination of the walls of the plug valve reversed from that shown in Fig. 1 and the inclination of the walls 6 with which the plug valve contacts is inclined to correspond to the inclination of walls of the plug valve, the discharge opening in this case being made large enough to permit the insertion and removal of the plug valve 17 which thus can be accomplished without disturbing the disk valve 9 and as there would be comparatively no wear upon said disk valve 9 since the pressure, as already explained, will be upon the upper surface thereof, the portion of the blow-off valve which will be most liable to damage or which will require regrounding; will be the plug valve 17 and in the construction shown in this figure, the said plug valve can be removed without removing the pressure from the disk valve 9 or in other words, the plug valve can be removed, ground, and replaced while the blow-off valve is under pressure.

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

1. In a blow-off valve, and cock, a disk valve upon the upper surface of which the pressure of the steam is adapted to act, means for operating said disk valve and a plug valve having means for operating the same, said plug valve controlling the discharge opening of the blow-off valve and said disk valve controlling the inlet of the blow-off valve.

2. In a device of the character described, a casing, a disk valve located in said casing and upon which the pressure is applied tending to seat the same, a plug valve located in said casing, and separate means for operating said valves independently of said casing.

3. In a device of the character described, a casing having a valve seat therein forming chambers on opposite sides, said seat having ports therein, a disk therefor on said seat and adapted to receive the pressure upon its upper surface, a plug valve controlling the outlet from one of said chambers, and independent means for operating said valves.

4. In a device of the character described, a casing having inlet and discharge ends, a seat in said casing having passages forming the communication between the inlet and discharge ports, a disk valve in said casing and on said seat and controlling the passage therein, a plug valve in said casing controlling the discharge port, and separate means for operating said valves independently of said casing.

5. In a device of the character described, a casing, having inlet and discharge ports, a seat in said casing dividing the same into inlet and outlet chambers, said seat having ports therein, a disk valve on said seat and having ports adapted to register with the ports in said seat and being so situated as to receive the pressure upon its upper surface, a plug valve controlling the ports of said discharge chamber, separate means for operating said valves, and stops in connection with said operating means being so situated as to prevent improper operation of the valves.

6. In a blow-off valve, and cock, a disk valve upon which the pressure is so applied as to tend to seat the same, means for operating said disk valve, a plug valve, separate means for operating the same, and means for preventing improper operation of said valves.

7. In a blow-off valve and cock, a disk valve upon which the pressure is so applied as to tend to seat the same, means for operating said disk valve, a plug valve, separate means for operating the same and stops so situated as to prevent improper operating of the valves.

8. In a device of the character described, a casing having inlet and discharge ports, a disk valve controlling said inlet port, a sleeve carried by said valve and adapted to be engaged for operating said disk valve, a plug valve located in said casing, and a stem on said valve projecting through said sleeve and adapted to be engaged to operate said plug valve.

GRIFF L. JONES.

Witnesses:

JOHN A. WIEDERSHEIM,
C. D. MCVAY.