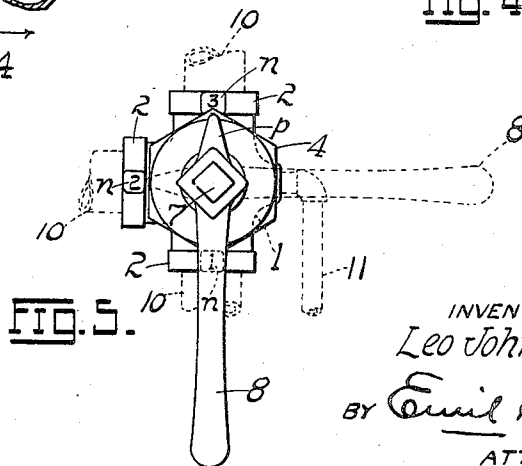
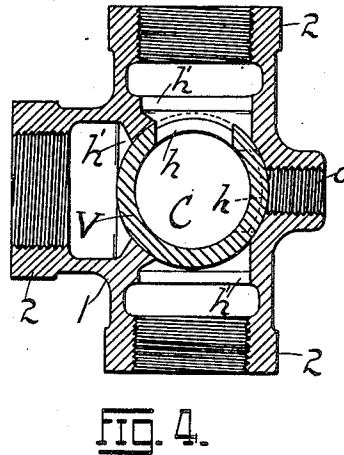
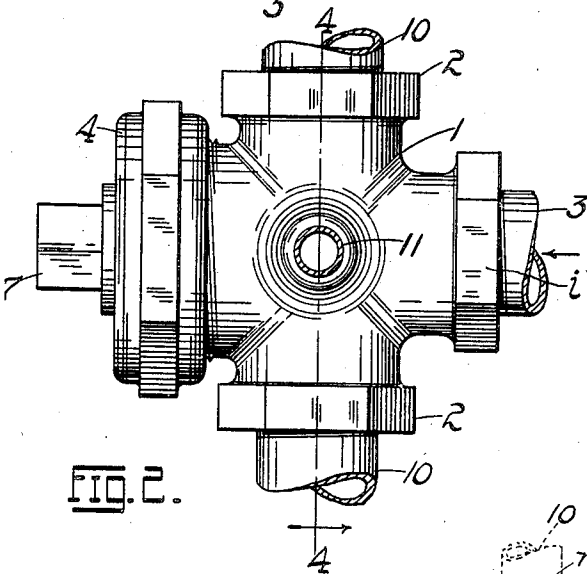
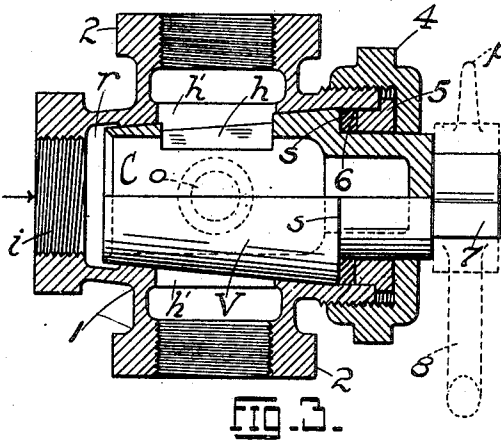
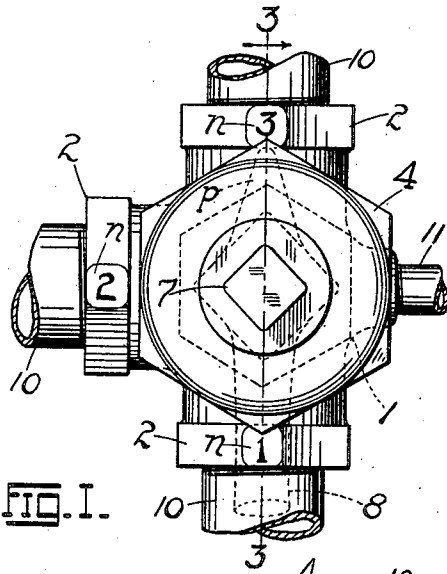


L. J. BAYER.
 ROTARY VALVE.
 APPLICATION FILED JUNE 10, 1918.

1,317,346.

Patented Sept. 30, 1919.



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ROTARY VALVE.

1,317,346.

Specification of Letters Patent.

Patented Sept. 30, 1919.

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To all whom it may concern:

Be it known that I, LEO JOHN BAYER, a citizen of the United States, residing at St. Louis, State of Missouri, have invented certain new and useful Improvements in Rotary Valves, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

The present invention is directed to improvements in rotary-valves, the particular object sought being to provide a valve of the character referred to which may be employed to advantage for distributing steam or equivalent fluid from a common supply source to different points of consumption. An example of a specific application of the improved valve is that of a distributing valve for steam in a soot-blowing system such as shown in an application for improvements in soot boiler cleaners filed concurrently herewith, or in any other system where it is desired to distribute in different directions a liquid, fluid, gas, or steam, from a common source of supply. A further object is to provide a valve which, when operating on steam, may automatically drain all water of condensation before the steam is delivered to any particular point of consumption. A further object is to provide a valve which shall be simple in construction, and one possessing further and other advantages better apparent from the following detailed description in connection with the accompanying drawing in which—

Figure 1 represents an end view looking toward the operating end of the valve; Fig. 2 is a view at right angles to Fig. 1; Fig. 3 is a middle longitudinal section on the line 3—3 of Fig. 1; Fig. 4 is a cross-section on the line 4—4 of Fig. 2; and Fig. 5 is a view similar to Fig. 1 on a smaller scale showing the application of the pointer on the operating handle.

Referring to the drawings, 1 represents a valve casing or shell from the peripheral walls of which radiate a series of hollow bosses 2 (in the present example three in number) the axes of the bosses intersecting the longitudinal axis of the bore of the valve casing. Opposite the middle boss the wall of the casing is provided with a port *o* serving as a drain port for the steam when the valve is to be used in a steam blower system as above pointed out. The intake end *i* of

the bore of the casing is interiorly threaded for securing thereto the end of a suitable steam supply pipe 3, the opposite end being exteriorly threaded for receiving a flanged nut 4 by which the gland 5 is firmly held against the packing ring 6 interposed between the gland and the shoulder *s* of a chambered or hollow rotary valve or key V rotatable in the bore of the casing, the axis of the bore and valve being coincident. As seen in the drawing, the bore of the casing 1 tapers toward the intake end, the outer wall of the valve being correspondingly tapered so as to form a tight joint with the walls of the bore. The chamber C of the valve is closed at the end opposite the intake end *i* of the valve-casing, said closed end being provided with a reduced polygonal or square extension 7 for engaging the socket of a wrench or operating lever 8 as shown. The open end of the valve terminates opposite the counter-bore or groove *r* formed in the wall of the bore of the casing adjacent the inner terminal of the threads in the intake *i*. The wall of the chambered portion of the valve V is provided with a port *h* elongated in the general direction of the longitudinal axis of the casing bore, said port being adapted to be brought into register with a corresponding elongated port *h'* formed in the peripheral wall of the casing at the base of each boss 2, the circular bore of each boss being screw-threaded for coupling to a suitable distributor pipe or header 10. When the valve or key is turned so as to close all the ports *h'*, the port *h* comes opposite the drain opening or port *o* (dotted position Fig. 4) so that any condensed steam may drain through said port and the drain pipe 11 leading therefrom to any point of discharge. The ports *h* and *h'* are so proportioned that only one port *h'* at a time may be opened to communicate with the supply pipe 3, so that only one pipe 10 at a time can be supplied with fluid or steam from the pipe 3. In the present embodiment of my invention I show three hollow bosses 2 radiating from the casing wall; but it is apparent that I may improvise a valve having any number of radially disposed bosses or nozzles for conducting the fluid to predetermined points of consumption. It will be observed that the fluid enters the valve chamber C along the common axis of the valve and bore of the casing, and is dis-

charged from the valve through the casing in radial lines or at right angles to the axis of the casing bore or rotation axis of the valve.

5 In order to show at a glance to the operator to which of the three pipes 10 the steam or other fluid is being delivered, I provide the handle 8 with a pointer *p* and at one of the corners of each of the polygonal
10 terminals of the bosses 2 I file away sufficient metal to leave a flat facet on which I mark respectively the numerals "1", "2", "3", designated by *n* (Fig. 5). Where the
15 pointer *p* for example points to the numeral "3" it means that the port *h* of the valve is in register with the port *h'* of the boss bearing said numeral. When the pointer points to
20 the numeral "2", it means that the port *h* is in register with the port *h'* of the middle boss and that the fluid is being delivered to the pipe 10 leading from said boss. When the
25 pointer points in a direction diametrically opposite to numeral "2" on the middle boss 2 (Fig. 5), it means that the port *h* of the
30 valve is in register with the drain port *o*, and that the fluid has been cut off from all of the bosses 2 and the distributing pipes 10 leading therefrom. The numerals "1", "2", "3", marked on the bosses 2 constitute
35 a dial for the pointer *p*. It is of course apparent that I may resort to many changes without in any wise affecting the nature or scope of the invention. For example I need not limit myself to a valve with three ports
40 *h'* and three bosses 2, any other number falling under my invention. Neither need I restrict myself to a single opening to form a "port". I may for example have a plurality of small openings with a combined
45 area of a single large opening as must be clearly obvious to those skilled in the art. The valve may be changed in other respects and yet come within the spirit of my invention.

45 Having described my invention what I claim is:

1. A valve comprising a casing provided with a central tapering bore, one end of said

bore serving as an intake, a chambered key mounted rotatably in the bore of the casing 50 and operable from a point outside the casing diametrically opposite the intake end of the bore, the chamber of the key being closed at one end and open at the end adjacent the intake, an exterior shoulder being formed on 55 the key opposite the closed end of the chamber thereof, a series of hollow bosses radiating from the casing and communicating with the bore through elongated ports formed in the wall of the casing, a reduced 60 drain port in the casing wall opposite one of the elongated ports aforesaid, a packing ring bearing against the shoulder on the key, a gland engaging the packing ring, and a nut on the casing controlling said gland and 65 thereby holding the key against longitudinal displacement, the wall of the key chamber being provided with an elongated port adapted to be brought into register with the port of any one of the bosses aforesaid. 70

2. A valve comprising a casing provided with a central tapering bore, one end of said bore serving as an intake, a chambered key mounted rotatably in the bore of the casing 75 and operable from a point outside the casing diametrically opposite the intake end of the bore, the chamber of the key being closed at one end and open at the end adjacent the intake, the wall of the casing being provided with a series of discharge ports communi- 80 cating with the bore, and being further provided with a reduced drain port communicating with the bore and spaced a suitable distance from the discharge ports on either side thereof, the wall of the key chamber being 85 provided with a port corresponding substantially with the discharge ports of the casing and adapted to be brought into register with any of said ports or with the drain port. 90

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

LEO JNO. BAYER.

Witnesses:

EMIL STAREK,
JOS. A. MICHEL.