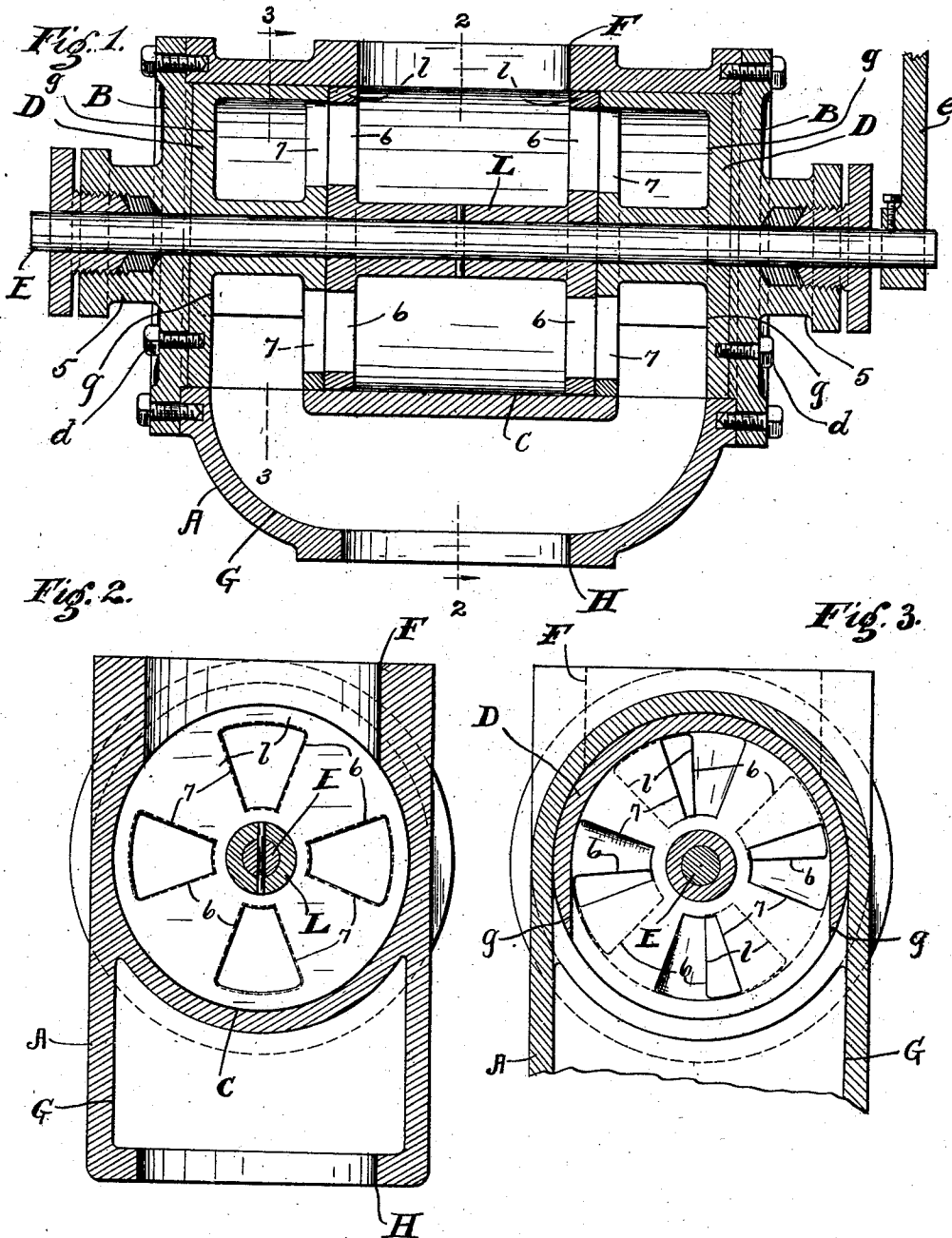


W. W. CLARK.
VALVE MECHANISM COMPRISING A ROTARY VALVE.
APPLICATION FILED MAY 7, 1910.

987,215.

Patented Mar. 21, 1911.



Witnesses:
H. J. Gettins.
B. C. Brown.

Inventor:
Warren W. Clark
By *[Signature]*
his Attorneys

UNITED STATES PATENT OFFICE.

WARREN W. CLARK, OF LORAIN, OHIO.

VALVE MECHANISM COMPRISING A ROTARY VALVE.

987,215.

Specification of Letters Patent.

Patented Mar. 21, 1911.

Application filed May 7, 1910. Serial No. 560,009.

To all whom it may concern:

Be it known that I, WARREN W. CLARK, a citizen of the United States of America, residing at Lorain, in the county of Lorain and State of Ohio, have invented certain new and useful Improvements in Valve Mechanism Comprising a Rotary Valve; and I hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same.

This invention relates to improvements in valve-mechanism comprising a rotary valve.

The primary object of this invention is to provide valve-mechanism of the character indicated having such construction that a large volume of fluid can be quickly conducted through the valve-casing and the passage of fluid through the valve-casing can be quickly interrupted.

With this object in view, and to the end of rendering the construction simple and durable, this invention consists in certain structural features, and combinations and arrangement of parts, hereinafter described, pointed out in the claims and illustrated in the accompanying drawings.

In the said drawings, Figure 1 is a central section of valve-mechanism embodying my invention. Fig. 2 is a transverse section on line 2—2, Fig. 1, looking in the direction indicated by the arrow. Fig. 3 is a transverse section on line 3—3, Fig. 1, looking inwardly.

Referring to the drawings, A indicates a hollow valve-casing which is provided with two heads B and B forming opposite ends respectively of the valve-casing. The valve-casing is provided centrally between the said heads with a circular chamber C which is arranged longitudinally between and spaced equidistantly from both heads. The valve-casing is also provided interiorly with two stationary hollow blocks D and D forming opposite end walls respectively of the circular chamber C and arranged next to or abutting against the inner side of opposite heads B and B respectively. Each block D is therefore formed of a piece independent of the body of the valve-casing A and the adjacent head B of the valve-casing. Displacement of the said blocks circumferentially is prevented by suitably applied bolts or screws d which extend through the heads B into the said blocks.

A shaft E has bearing in the heads B and blocks D and extends centrally through the said blocks and heads and through the circular chamber C. The said shaft extends externally of the valve-casing at the outer sides of both heads B and is operatively provided at one end with a lever e for rotating the shaft. Each head B is provided at its outer side with a stuffing-box 5 around the shaft.

The valve-casing is provided centrally between the blocks D and D, and consequently centrally between the end walls of the circular chamber C, with an opening F which continually communicates with the said chamber and extends from the said chamber to the exterior of the valve-casing. The valve-casing is also provided interiorly with a chamber G which has its central portion arranged externally of the circular chamber C at a point diametrically opposite the opening F and extends between the blocks D and D externally of the circular chamber C and into the said blocks, as at g, and within the said blocks extends around or circumferentially of the shaft E. The valve-casing is also provided with an opening H which is formed in the valve-casing at a point diametrically opposite the opening F and is arranged centrally between the blocks D and D. The opening H continually communicates with the chamber G and extends from the said chamber to the exterior of the valve-casing. It will be observed therefore that the openings F and H are arranged in line endwise and that during the operation of my improved valve-mechanism one of the said openings forms a fluid-inlet and the other of the said openings forms a fluid-outlet.

Communication between the openings F and H is controlled by two rotary metal disk-valves l which are arranged within opposite ends respectively of the circular chamber C and surround the shaft E. The two valves l are connected together centrally by a tubular web L which is mounted on and pinned to or otherwise operatively connected with the shaft E. The valves l are therefore operatively connected with the shaft E and the shaft and its lever e constitute means for operating the valves. The web L and the valves l are preferably composed of a single piece. Each valve l is arranged next to the inner end of the adjacent block D and consequently next to the

adjacent end wall of the circular chamber C. Each valve 7 substantially corresponds in dimensions diametrically with the adjacent block D and is provided with four ports 6 which extend through the valve and are spaced equidistantly from and equidistantly circumferentially of the shaft E and consequently equidistantly from and circumferentially of the axis of the valve. The said valve-ports 6 continually communicate with the circular chamber C. Each end wall of the circular chamber C—that is, each block D—is provided with four ports 7 which therefore numerically correspond with the ports in the adjacent valve and are spaced equidistantly from and equidistantly circumferentially of the shaft E and consequently from and circumferentially of the central portion of the said block or wall. The ports 7 of each block D communicate continually with the adjacent end portion *g* of the chamber G and extend from the inner end of the said block to the said end portion of the said chamber. The ports 6 in each valve 7 are out of or in registry with the ports 7 in the adjacent end wall of the circular chamber C according as the valve is in its closed or fully open position. The valve-ports 6 are therefore arranged to establish communication between the circular chamber C and the ports 7 of the blocks D in the unclosed position of the valves. In Figs. 1 and 2 the valves are shown in their fully open position. In Fig. 3 the valves are shown partially closed or partially open as the case may be. It will be observed that both valves are arranged to operate in unison so that they close or open simultaneously and are in their fully open position, as shown in Fig. 1, at the same time.

By the construction hereinbefore described a large volume of fluid may be quickly conducted from the one to the other of the openings F and H of the valve-casing, and obviously communication between the said openings may be as rapidly interrupted.

My improved valve-mechanism is simple and durable in construction and not liable to get out of order.

What I claim is:—

1. In valve-mechanism, a valve-casing which has two heads forming opposite ends respectively of the valve-casing and is provided interiorly with a circular chamber which is arranged centrally between the said heads and contains two hollow blocks forming opposite end walls respectively of said chamber and bearing against opposite heads respectively, which valve-casing has another chamber arranged externally of said circular chamber and formed partially within each of the aforesaid blocks and partially externally of the said blocks, said valve-casing having an opening which continually com-

municates with said circular chamber between said blocks and also being provided with another opening which continually communicates with the second-mentioned chamber between but externally of said blocks and externally of said circular chamber, each block being provided with ports which connect with the aforesaid circular chamber and are continually in communication with the second-mentioned chamber, and two suitably operated rotary disk-valves contained within said circular chamber and arranged next to opposite blocks respectively and provided each with ports which are out of or in registry with the ports in the adjacent block according as the valves are in their closed or fully open position, the ports in the valves being adapted to establish communication between the aforesaid circular chamber and the ports in the blocks in the unclosed position of the valves.

2. In valve-mechanism, a valve-casing which has two heads forming opposite ends respectively of the valve-casing and is provided interiorly with a circular chamber which is arranged centrally between the said heads and contains two hollow blocks forming opposite end walls respectively of said chamber and arranged adjacent opposite heads respectively, which valve-casing has another chamber arranged externally of said circular chamber and formed partially within each of the aforesaid blocks and partially externally of the blocks, said valve-casing having an opening which continually communicates with said circular chamber between said blocks and also being provided with another opening which continually communicates with the second-mentioned chamber between but externally of said blocks and externally of said circular chamber, each block being provided with ports which connect with the aforesaid circular chamber and continually communicate with the second-mentioned chamber; a suitably operated shaft arranged centrally of and extending through the ported blocks and through the aforesaid circular chamber and through both of the aforesaid heads of the valve-casing, and two rotary disk-valves contained within said circular chamber and mounted on and operatively connected with the shaft and arranged next to opposite blocks respectively, each valve being provided with ports which are out of or in registry with the ports in the adjacent block according as the valve is in its closed or fully open position.

3. In valve-mechanism, a valve-casing which has two heads forming opposite ends respectively of the valve-casing and is provided interiorly with a chamber which is arranged centrally between the said heads and contains two hollow blocks forming opposite end walls respectively of said cham-

ber and arranged adjacent opposite heads
respectively, which valve-casing has another
chamber arranged externally of the first-
mentioned chamber and formed partially
5 within each of the aforesaid blocks and par-
tially externally of the blocks, said valve-
casing having an opening which communi-
cates with the first-mentioned chamber be-
tween said blocks and also being provided
10 with another opening which communicates
with the second-mentioned chamber between
but externally of said blocks and externally
of the first-mentioned chamber, each block
being provided with ports which are in com-
15 munication with the second-mentioned cham-
ber; members extending through the afore-

said heads of the valve-casing into the said
blocks, and two suitably operated rotary
disk-valves contained within the first-men-
tioned chamber and arranged next to oppo- 20
site blocks respectively and provided each
with ports which are out of or in registry
with the ports in the adjacent block ac-
cording as the valves are in their closed or
fully open position. 25

In testimony whereof, I sign the forego-
ing specification, in the presence of two
witnesses.

WARREN W. CLARK.

Witnesses:

C. H. DORER,

B. C. BROWN.

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