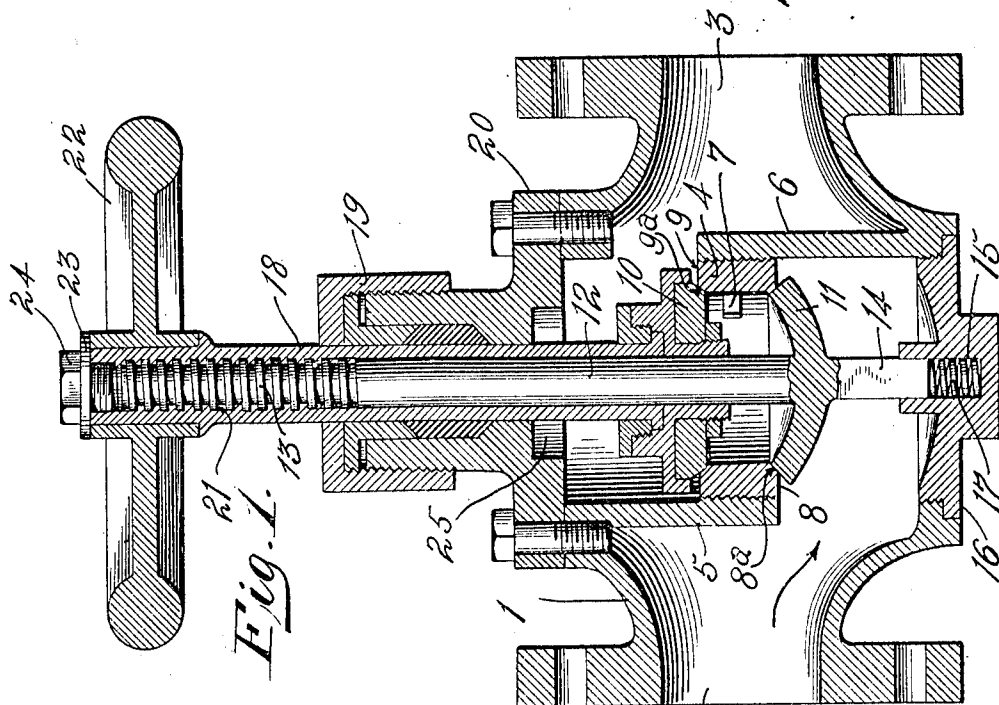
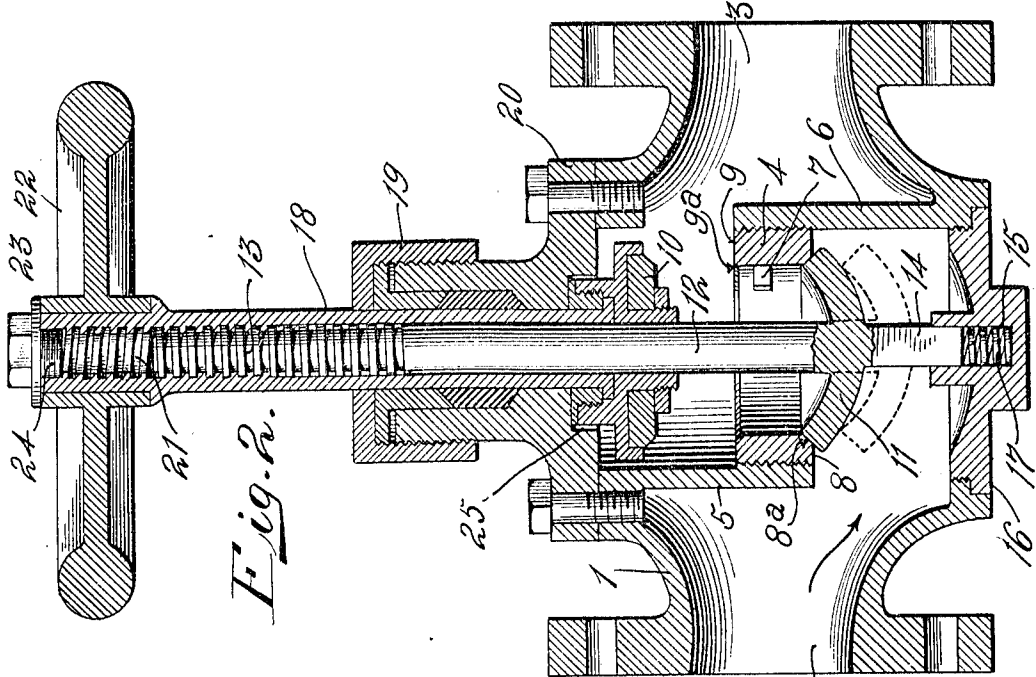


T. ANDREWS.
VALVE.

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949,168.

Patented Feb. 15, 1910.



WITNESSES
Harry C. Hebig
August F. Dineen

INVENTOR
Thomas Andrews
BY
Dunn Turk Clarke
ATTORNEY

UNITED STATES PATENT OFFICE.

THOMAS ANDREWS, OF ROCKAWAY, NEW JERSEY.

VALVE.

949,168.

Specification of Letters Patent.

Patented Feb. 15, 1910.

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To all whom it may concern:

Be it known that I, THOMAS ANDREWS, a citizen of the United States, and a resident of Rockaway, in the county of Morris and State of New Jersey, have invented certain new and useful Improvements in Valves, of which the following is a full, clear, and exact specification.

The object of my invention is to provide a new and improved valve which is simple and durable in construction, more especially designed for use as a stop valve, such as a blow-off valve, and arranged to relieve the main body of this valve of undue pressure when closed, and thus avoid the danger of employees being scalded to death by valve breaking, and to allow an easy and full opening of the main valve before the flow of the fluid through the valve begins, thus preventing injury to the main valve, and insuring long life thereof without danger of leakage.

The invention consists of novel features and parts and combinations of the same, which will be more fully described hereinafter, and then pointed out in the claims.

A practical embodiment of the invention is represented in the accompanying drawings forming part of this specification, in which—

Figure 1 is a sectional side elevation of the improvement; and Fig. 2 is a like view of the same, and showing the main valve in an open position.

Like reference characters indicate like parts in the different figures of the drawings.

The body or casing 1 of the valve is provided with the usual inlet 2 and with an outlet 3, and between the inlet and outlet are interposed the valve seat 4, shown as screw threaded externally and as being screwed into threaded portions of the walls 5, 6 of the inlet chamber. Suitable means are provided for engaging valve seat 4 to unscrew the same if desired, as for instance lug 7. Valve seat 4 is provided with pressure face 8 and non-pressure face 9, beveled at their inner edges and forming seats 8^a, 9^a, for the main valve 10 and the auxiliary valve 11. Auxiliary valve 11 is rigidly mounted upon valve stem 12, which at its upper end is screw-threaded at 13. The auxiliary valve is provided with an attached squared shank 14, which enters a correspondingly shaped bear-

ing 15, formed in the plug 16 screwed in the bottom of inlet 2 in casing 1, and is there pressed by the spring 17. Plug 16 may be removed to renew the removable valve seat 4. The main valve stem 18 passes through a stuffing box 19 fixed to the casing 1 by the cap 20, and carries at its lower end the main valve 10 mounted to revolve freely thereon. It is formed with a hollow bore, screw-threaded internally at its upper end at 21, into which enters the thread 13 of the auxiliary valve stem 12, which passes through the bore of said main valve stem, and upon which the said main valve stem turns.

Upon the squared, upper end of the main valve stem is mounted a hand-wheel 22, through which the operator controls the main and auxiliary valves, and which is held in place by washer 23 and headed bolt 24 tapped into the said main valve stem.

When the valve is in use and closed, the pressure of the fluid in the inlet 2 is against the auxiliary valve 11, to hold the same to its seat face 8^a by fluid pressure assisted by the spring 17, and the valve 10 is held in a closed position on the seat 9^a by the valve stem 18 being screwed down on the valve stem 12. Thus the fluid pressure within the inlet 2 does not affect the main valve 10 to any extent, even if a slight leak of the fluid passes the auxiliary valve 11. When it is desired to open the valve, the operator turns the hand wheel 22 in one direction, to cause the stem 18 to screw up on the threaded portion 13 of the valve stem 12 of the auxiliary valve 11, so that the main valve 10 moves into an open position. This upward movement of the main valve stem results from the squared shank and bearing 14, 15 of the auxiliary valve stem, which hold it against rotation, and to the spring 15, as well as the steam pressure on the inlet side of the auxiliary valve, which resist longitudinal movement of such valve.

The main valve 10, when fully opened, is seated in a seat 25 formed on the inside of the cap 20, and after this is accomplished, a continued turning of the handle 22 will cause the valve stem 12 and its valve 11, being held from turning by squared shank and bearing 14, 15, to move downward into the position shown by dotted lines in Fig. 2, as the threaded portion 13 is now screwing downward in the threaded stem 21. The

auxiliary valve 11 is thus moved into an open position after the main valve 10 has been moved into a full open position.

From the foregoing it will be seen that
 5 the closed valve 11 forms a resistance for the operating means when the valve 10 is to be opened, and the open valve 10 forms a resistance for the operating means when the auxiliary valve is to be opened. When it is
 10 desired to close the valves 10, 11, the hand wheel 22 is turned in the reverse direction, so that the auxiliary valve 11 first moves into a closed position, assisted by the spring 17, and then the main valve 10 moves
 15 to its seat. It follows that the main valve 10 and its seat 9^a are not subjected to the injurious grinding action of grit and other deleterious matter on opening the valve 10, as the latter must be opened to its full extent
 20 before the flow of the fluid begins through the valve on the subsequent opening of the auxiliary valve E.

My improved construction of valve is particularly advantageous for use as a blow-off
 25 valve, although it is by no means limited to such use, and will be found to be useful for many other purposes.

Blow-off valves are exposed to great wear, particularly on the valve face and seat, from
 30 the scale and grit blown out of the boiler, and with my valve it is possible to repair or reseal the main valve, and this without shutting off pressure or cutting the boiler out of the battery. This is accomplished by closing
 35 the auxiliary valve 11 and removing cap 20, when the main valve stem may be unscrewed from the auxiliary valve stem, and with the main valve and connected parts, may be lifted out, and access be readily obtained to
 40 the main valve. Likewise, should a break occur in the top, or yoke, or nut of my valve, it may be repaired without removing the valve. I have illustrated my improvement as embodied in a T valve, although it may

be equally well embodied in an L valve, 45 or in an angle valve, or any other shape.

It is obvious that many modifications can be made in my invention from the particular form shown in the drawings, without departing from the spirit of the invention, 50 and I do not intend to limit myself to the particular construction shown, but

What I claim and desire to secure by Letters Patent is:

1. A device of the character described including a casing, a valve seat formed therein, an auxiliary housing mounted on said casing, a rotative sleeve mounted in said housing, a valve disk carried by said sleeve, a hand wheel carried by said sleeve, a stem 60 mounted in said sleeve and casing, a valve disk formed with said stem, and threads formed on said stem engaging said sleeve adapted to form means for dissimultaneously moving said valve disks into engagement with said valve seat. 65

2. A device of the character described including a casing, an auxiliary housing mounted on said casing, a valve seat mounted in said casing, a rotative sleeve mounted 70 in said auxiliary housing, a valve carried by said rotative sleeve, a threaded stem mounted in said sleeve and casing, a valve carried by said stem, a spring associated with said stem mounted in said casing adapted to seat 75 said valve on said stem, and a hand wheel mounted on said sleeve adapted to cause the dissimultaneous movement of said valves on said rotative sleeve and stem with relation to said valve seat. 80

In testimony whereof, I have hereunto set my hand in the presence of two subscribing witnesses.

THOMAS ANDREWS.

Witnesses:

RAYMOND L. MOTT,
 E. BERTRAM MOTT.