

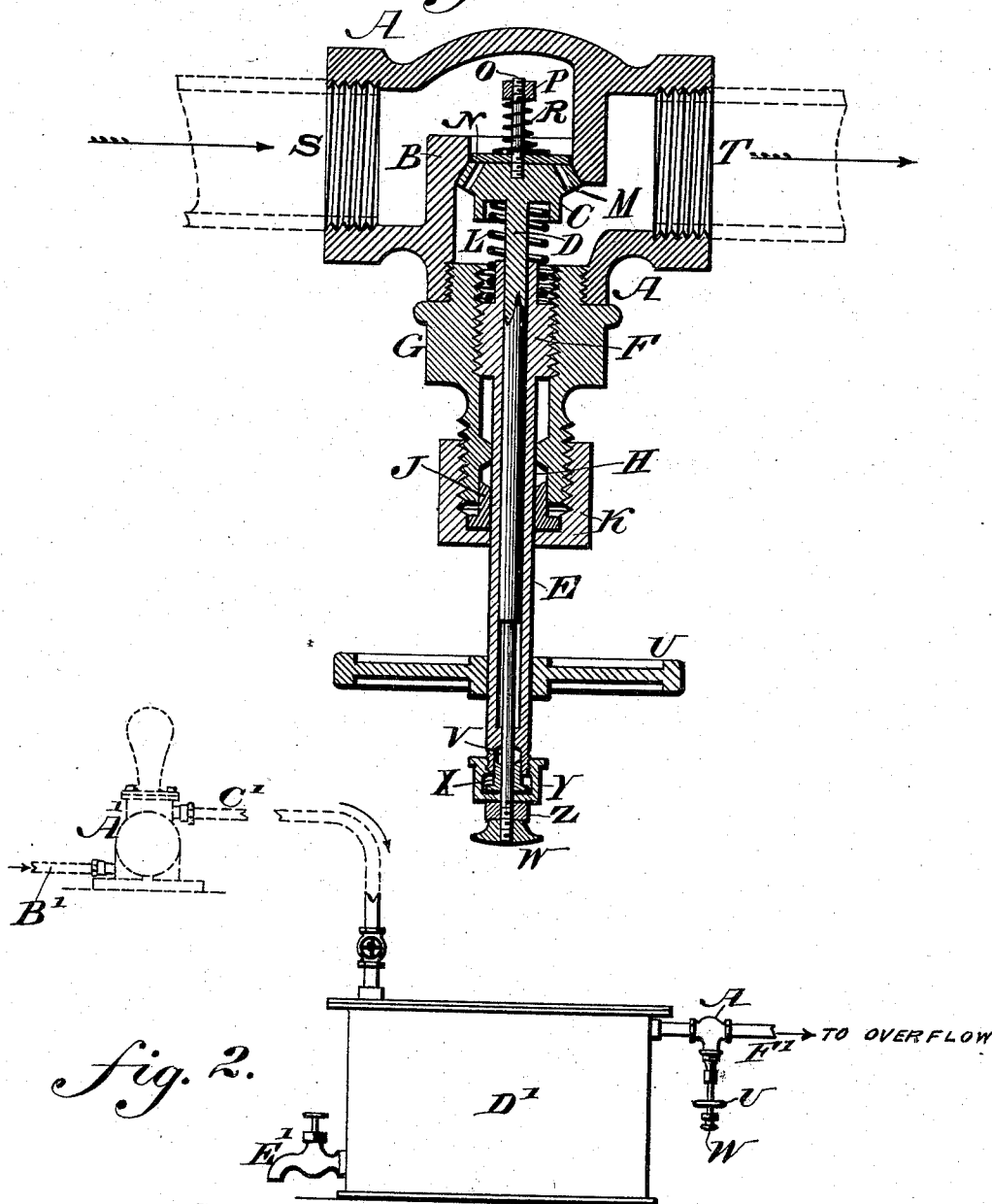
(No Model.)

J. A. BLAIR.  
VALVE.

No. 526,177.

Patented Sept. 18, 1894.

*Fig. 1.*



*Fig. 2.*

WITNESSES:  
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# UNITED STATES PATENT OFFICE.

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## VALVE.

SPECIFICATION forming part of Letters Patent No. 526,177, dated September 18, 1894.

Application filed March 20, 1894. Serial No. 504,421. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN A. BLAIR, a citizen of the United States, residing in the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Improvement in Valves, which improvement is fully set forth in the following specification and accompanying drawings.

My invention consists of a valve which is provided with a relief valve, the combination and operation being hereinafter fully set forth.

Figure 1 represents a longitudinal section of a valve embodying my invention. Fig. 2 represents the application of the same to a tank.

Similar letters of reference indicate corresponding parts in the two figures.

Referring to the drawings: A designates a valve casing; B, a valve seat; C, a valve having a solid stem D, which extends through a hollow stem E, which latter has the threaded plug F, which engages the extension G, which is provided at its other extremity with the stuffing box H, gland J and nut K to engage the said extension G.

L designates a spring one end of which abuts on the valve C, and the other on the plug F.

S designates the inlet and T the outlet openings of the valve casing. U designates a hand wheel; V, a stuffing box; X, a gland; Y, a nut; Z, a lock nut, and W a small wheel for actuating the stem D, all the above parts being substantially the same as described in another contemporaneously pending application filed by me, and require no further description here. In the present case, the valve C has ports or perforations M, which are covered by the disk valve or diaphragm N.

O designates a stud, one end of which is secured to the valve C, while the other carries a nut P for adjusting the light spring R, which rests on the diaphragm N.

In Fig. 2, A' designates in dotted lines, a pump having the suction pipe B', and discharge pipe C' leading into the tank D', which is provided with the spigot E', and the discharge or overflow pipe F', which may lead to any desired point, having therein the valve A hereinbefore described.

G' designates in dotted lines a basin placed

under the spigot E', the same being adapted to be supplied from the tank.

If the pressure from the pump should at any time exceed the bursting point of the tank, and there were no means of relief, the tank would burst.

Where the tank is used on shipboard, if the pipe F' was simply an overflow pipe at the top of the tank, the rolling of the ship would cause the water to swash out and be wasted. By the use of my valve in the overflow pipe, no water can swash out, and there is no danger of bursting the tank by any undue accumulation of pressure therein, because as the pressure begins to accumulate it forces the diaphragm N down onto its seat, aided somewhat by the spring R, closing the small ports M, and any increase of pressure over the tension of the spring L, will lift the valve C from its seat, relieving such dangerous increase of pressure and allowing it to escape through the overflow pipe F', and no harm will be done.

In case the tank was not quite full, and it should be desired to use water from the same, by opening the small cock E', at the base of the tank, air at once enters from the discharge pipe F', passes through ports M in the valve C, and lifts the small valve N, the pressure exerted on it by the spring R being comparatively slight, this admission of air causing water to flow out of the spigot into the basin.

My device is particularly adapted for use in connection with washrooms or closets of ships and other places, and the pumps may be located above or below the tank or tanks, as may be expedient, and I, may if desired employ a single large tank, from which the water is conducted to either tank and thence to washbasins or water closets, or to both.

Where the tank is above the pump, and the overflow pipe F' discharges overboard, a pipe having a cock leading from the base of the tank may convey the water to the several points where it is desired to be used. It is obvious however, that the above is but one of the many applications of my device, and I do not desire to be limited to the exact construction I have herein shown and described. I have also described the stem D as solid, and by this I mean that the said stem is not occupied by the operative parts of the valve, as

shown in prior constructions. On the contrary, all of said parts in my device are located exteriorly of said stem thereby rendering the valve more effective in its operation, as is evident.

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

10 1. A valve casing having therein a valve seat, a valve having a solid stem, and adapted to rest on said seat, and provided with ports, and a movable spring pressed diaphragm on the side opposite said stem adapted to close said ports, and to be opened by pressure through them, substantially as described.

15 2. A valve provided with the head C, having ports M therein, said head having on one side the stem D, plug F and spring L, while the other side of said head is provided with the diaphragm N and the spring R and means for keeping said spring in contact with the outer face of said diaphragm, all the operative parts of said valve being located exteriorly of the stem D substantially as described.

25 3. A valve provided with a head having ports therein, said head having on one side the solid stem D, plug F and spring L, while the other side of said head is provided with the diaphragm N and spring R, the latter being held in contact with said diaphragm by means of the stud O and nut P, the above

parts being combined substantially as described.

4. A valve having a head C provided with ports M, a spring-pressed diaphragm N adapted to close said ports, said head being provided with the solid stem D and the spring L adapted to hold said head normally on its seat, said parts being combined substantially as and for the purpose set forth.

5. The valve C having ports M, covered by the diaphragm N, stem D working in the hollow stem E, and spring L adapted to abut against a portion of the stem E and the valve C, means for exteriorly actuating the valve stems D and E, without disconnecting the valve all the operative parts of said valve being located exteriorly of said stem D said parts being combined substantially as described.

6. A tank, means for forcing a fluid into the same, an overflow pipe at the upper portion of the tank, having therein a valve, provided with a head and a relief valve thereon, the operative parts of said valve being located exteriorly of its stem substantially as shown, and a valved outlet near the base, said parts being combined substantially as and for the purpose set forth.

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Witnesses:

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