No. 851,365. PATENTED APR. 23, 1907.

M. M. MOORE.

VALVE.

APPLICATION FILED JULY 27, 1904.

2 SHEETS—SHEET 1.

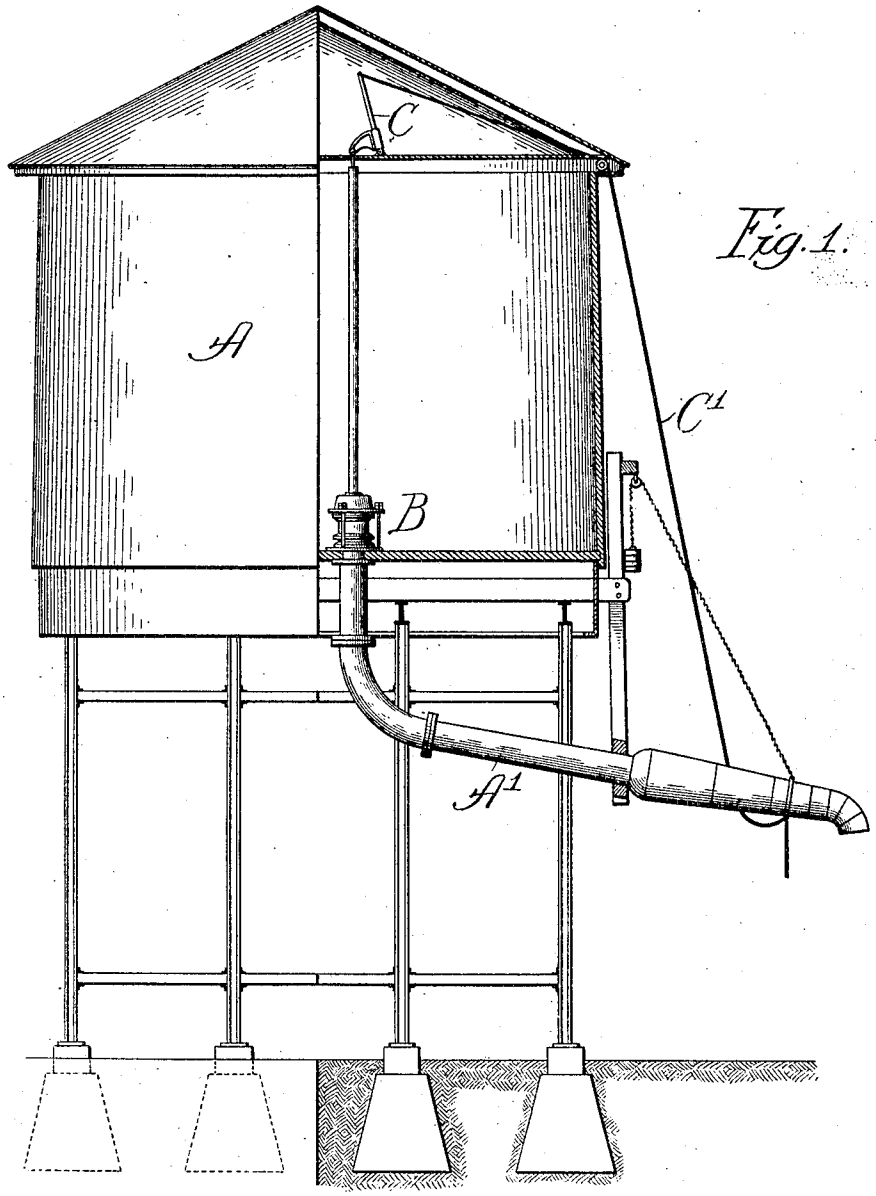


Fig. 1.

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THE NORRIS PETERS CO., WASHINGTON, D. C.

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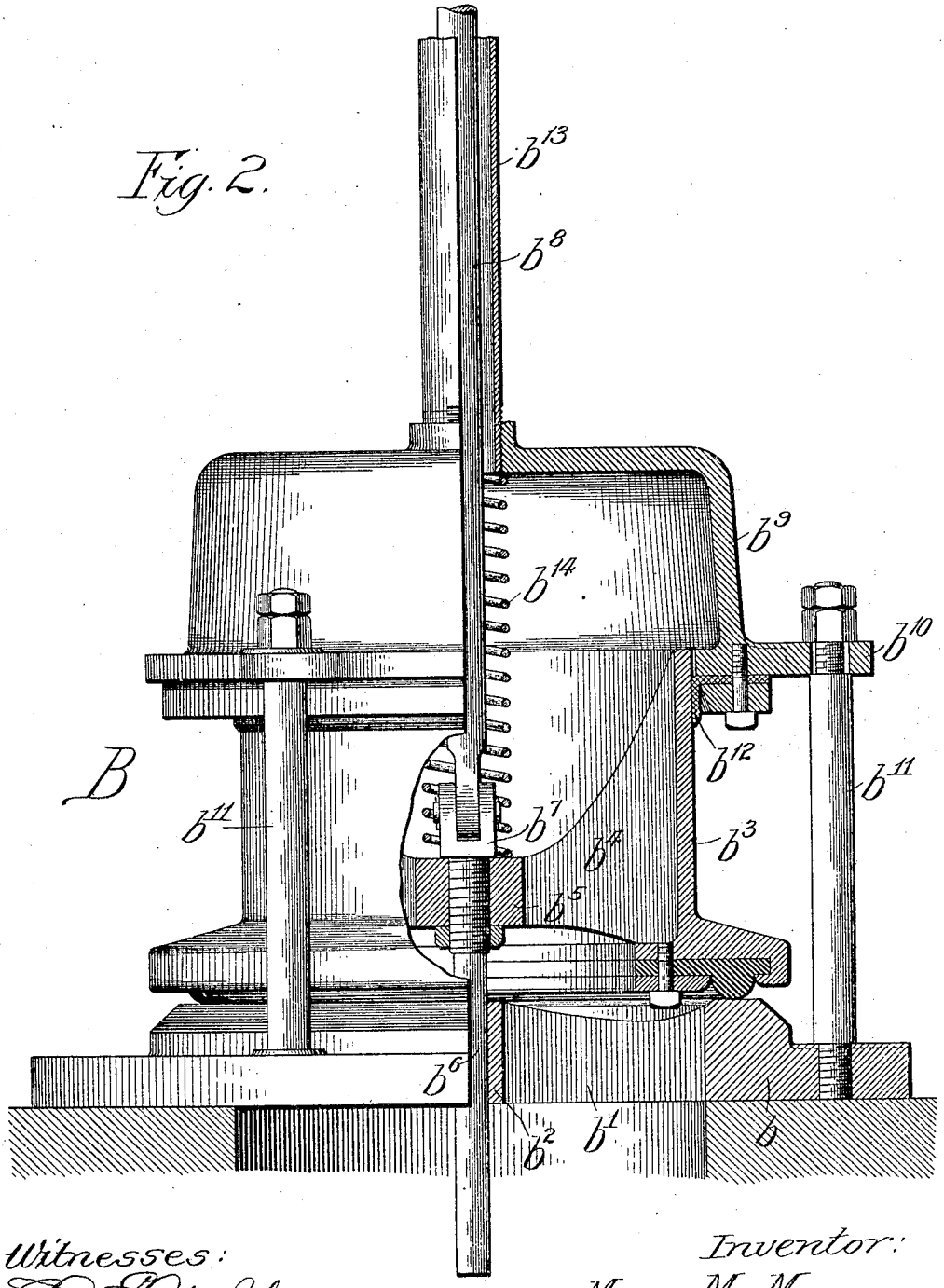
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2 SHEETS—SHEET 2.

Fig. 2.



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UNITED STATES PATENT OFFICE.

MOSES M. MOORE, OF CHICAGO, ILLINOIS, ASSIGNOR TO T. W. SNOW, OF CHICAGO, ILLINOIS.

VALVE.

No. 851,365. Specification of Letters Patent. Patented April 23, 1907.

Application filed July 27, 1904. Serial No. 218,345.

To all whom it may concern:

Be it known that I, MOSES M. MOORE, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Valves, of which the following is a specification.

My invention relates particularly to tank-valves, such as are employed in connection with railway water-tanks; and my primary object is to provide a valve of improved construction and operation, possessing great facility of operation and control.

The invention is illustrated in the accompanying drawings, in which—

Figure 1 is a view partly in section and partly in elevation of a water-tank equipped with my improved valve; and Fig. 2, an enlarged broken sectional view showing the construction of the valve.

In the construction shown, A represents a water-tank having connected with its bottom a discharge passage or spout A^1; B, my improved valve mechanism located within the tank and guarding the discharge; and C, a bell-crank lever serving to actuate the valve and which, in turn, is supplied with an operating rope C^1.

On the upper surface of the floor of the tank there is located at the discharge orifice a valve-seat b comprising a ring equipped interiorly with radial arms b^1 supporting a central guide b^2. Upon the valve-seat is supported a valve b^3 comprising a cylindrical member equipped at its bottom with a suitable gasket resting upon the valve-seat and provided interiorly with arms b^4 terminating in a central hub b^5 equipped with the downwardly projecting stem b^6 working in a guide b^2. The upper side of the hub b^5 is equipped with a divided lug b^7 with which is pivotally connected an actuating stem b^8, whose upper end is pivotally joined to the short arm of the bell-crank lever C. At a suitable distance above the valve-seat is a chamber b^9 having at its lower portion an external flange equipped with lugs b^{10} which are slotted to receive the reduced upper ends of bolts or standards b^{11} upon which the chamber b^9 is adjustably supported. The chamber b^9 is open at its lower end to receive the upper end of the valve b^3, and is provided adjacent to its opening with a packing-ring b^{12} which engages the cylindrical surface of the valve. Connected with the top of the chamber b^9 is a pipe b^{13} which leads to the top of the tank, or above the level of the water, and affords a housing for the actuating rod b^8 and as an air-admission passage for venting the discharge spout A^1. Between the top of the chamber b^9 and the hub b^5 of the valve is confined a coil spring b^{14} which tends to keep the valve normally closed. The valve is virtually an annular valve having bottom contact with the valve-seat b and side contact, or telescopic connection, with the packing-ring b^{12} of the chamber b^9.

From the foregoing detailed description, the operation will be readily understood. When it is desired to allow water to escape through the discharge pipe A^1, the cord C^1 is drawn downwardly to actuate the bell-crank lever C, thereby lifting the valve through the medium of the rod b^8. This permits water to pass beneath the valve from all sides and escape through the annular valve-seat b. The valve is provided at its lower portion with a flange the upper surface of which is always subjected to water pressure, and a portion only of the lower surface of which is subjected to water pressure when the valve is closed. The difference in pressure is sufficient to maintain the valve in the closed position, but is not sufficient to render it difficult to raise the valve. When the valve is wide open there is little or no tendency for it to close under the action of the escaping water, but the spring b^{14} will operate to lower it when the pull upon the cord C^1 is released, permitting the valve to be closed to any desired position. After the valve has been completely closed, the water escapes at once from the pipe A^1, by reason of the fact that the air can pass readily from above through the chamber b^9, valve b^3, and valve-seat b^2 to the upper end of the pipe.

It should be observed that by reason of the slotted connection between the standard b^{11} and the lugs b^{10}, the chamber b^9 may be adjusted laterally to center the valve properly with relation to its seat. In practice, there is some looseness, or lost motion, at the pivotal connection between the lower end of the rod b^8 and the valve, so that the valve will properly seat itself, regardless of the position maintained by its actuating rod. The pivotal connection is made at as low a point as possible, as may be readily inferred. It will

be understood that the lateral pressure upon the valve is balanced, and that there is only such unbalanced downward pressure upon the valve, due to the water, as is desired to maintain the valve firmly upon its seat. It may be remarked that the pipe b^{13}, in serving as a housing for the rod b^{8}, will prevent ice from forming upon the actuating rod during the cold weather, which is a feature of advantage incidental to my improved construction.

Changes in details of construction within the spirit of my invention are contemplated, hence no undue limitation should be understood from the foregoing detailed description.

What I regard as new, and desire to secure by Letters Patent, is—

1. The combination with a tank having a discharge outlet at its bottom and a valve seat thereat provided with an upwardly presented seating surface and provided also with arms equipped with a central guide, of a laterally adjustable chamber supported at a distance above said valve-seat and having a closed top and an open bottom, an annular valve telescopically connected with said chamber and having a stem moving in said guide and having also an external flange subjected to unbalanced water pressure, a discharge pipe beneath the valve-seat, a pipe joined to the top of said chamber and extending to the upper portion of the tank, and an actuating rod extending through said second-named pipe and having articulated connection with the valve, for the purpose set forth.

2. The combination with a tank having a discharge outlet at its bottom and a valve-seat on the upper surface of said bottom, of a laterally adjustable chamber supported at a distance above said valve-seat, and a valve telescopically connected with said chamber, for the purpose set forth.

MOSES M. MOORE.

In presence of
L. HEISLAR,
W. B. DAVIES.