

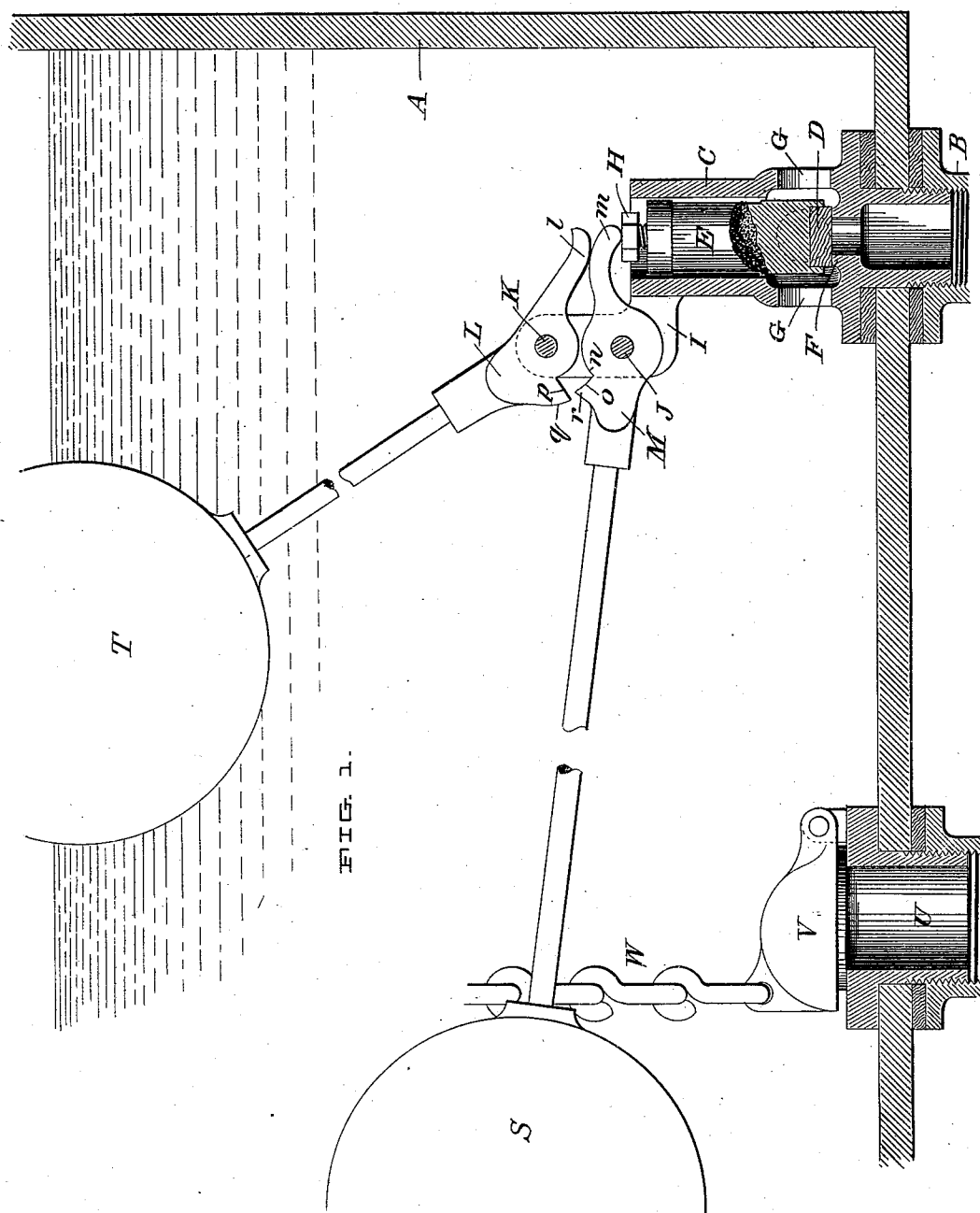
(No Model.)

2 Sheets—Sheet 1.

J. M. CLOSSON.
SUPPLY VALVE FOR WATER TANKS.

No. 565,881.

Patented Aug. 18, 1896.



WITNESSES:

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Geo. F. Lupton

INVENTOR:

JOHN M. CLOSSON,
by *Franklin Scott*, Attorney.

(No Model.)

2 Sheets—Sheet 2.

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FIG. 2.

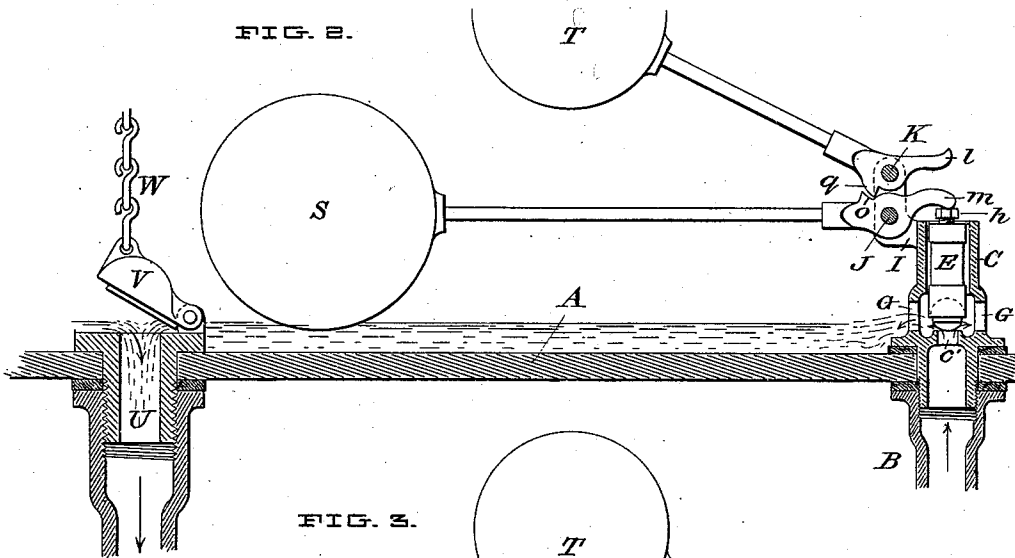


FIG. 3.

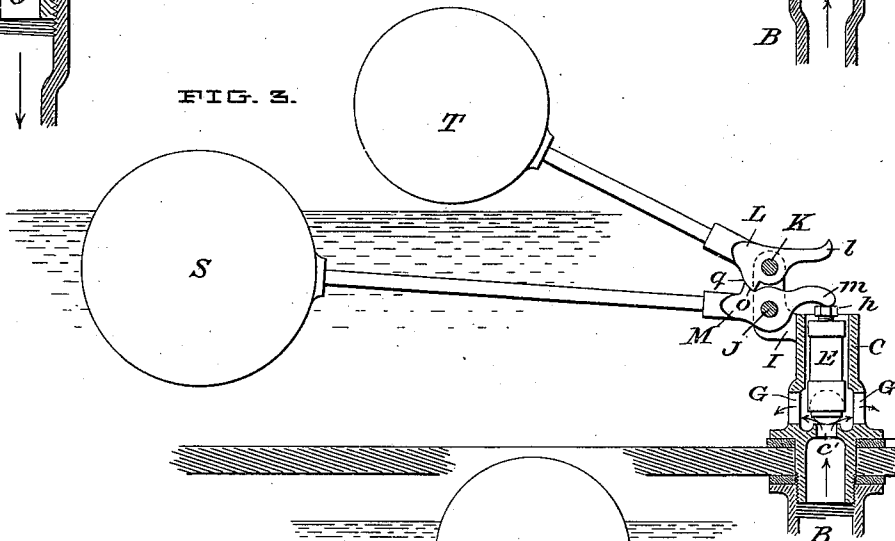
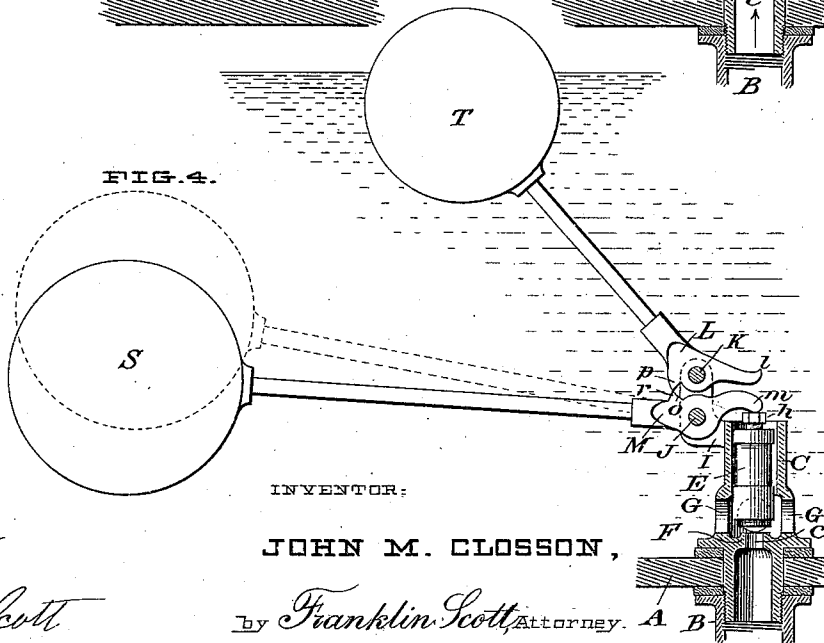


FIG. 4.



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UNITED STATES PATENT OFFICE.

JOHN M. CLOSSON, OF HOOSICK FALLS, NEW YORK, ASSIGNOR OF ONE-HALF
TO WATSON M. HOLMES, OF SAME PLACE.

SUPPLY-VALVE FOR WATER-TANKS.

SPECIFICATION forming part of Letters Patent No. 565,881, dated August 18, 1896.

Application filed February 26, 1895. Serial No. 539,744. (No model.)

To all whom it may concern:

Be it known that I, JOHN M. CLOSSON, a citizen of the United States, residing at the village of Hoosick Falls, in the county of Rensselaer and State of New York, have invented certain Improvements in Supply-Valves for Water-Tanks, of which the subjoined description, in connection with the accompanying two sheets of drawings, constitutes a specification.

This invention is adapted for use in all those situations and under all those conditions where a supply-current is introduced into a tank or reservoir against the pressure of the head of water or other fluid in the tank, and where when the tank or reservoir is full the supply should be instantly cut off.

Such tanks are in common use as flush-tanks in connection with water-closets and other similar structures; but many such tanks in common use, especially the siphon-tanks, work in a very unsatisfactory manner, and on account of the unpleasant noises they give out in the process of filling, especially for a few seconds just before the supply-valve is closed, and the other fact that the supply-valves and their valve-seats cut out rapidly under the action of the water in forcing its way into the tank against the pressure put on the valve to close it by the valve-float a desideratum has long existed for a valve which should admit the water freely and noiselessly during the process of filling the tank, and, when it is full, which should instantly and also noiselessly close the supply-valve.

The object of this invention is to supply such an apparatus. To effect this object, I have devised the mechanism shown in the annexed drawings, in which—

Figure 1 is a vertical section taken on a plane through the axes of the supply and discharge valves and shows a tank filled and the valves all closed. Fig. 2 is a similar view showing an empty tank with both valves open. Fig. 3 is a similar view showing a partially-filled tank with the governing-float locked at a point which leaves the supply-valve sufficiently open to permit a free flow of water through it. Fig. 4 is a similar view showing a full tank with the check-float just on the

point of releasing the governing-float preparatory to closing the valve.

A section of an ordinary tank is shown at A. This is fitted with a supply-pipe B and a discharge-pipe U. The provisions for discharging the water may be of any kind adapted to the purpose and form no part of my invention. The discharge-valve V is placed under the control of the operator by means of the chain W or in any other way. The upper part of the supply-pipe B has a valve-chamber C screwed to its upper end, the upper part of which forms a cage in which the puppet-valve E plays. This valve is fitted with packing D, which in use closes down onto the valve-seat F. When the valve is raised, the water finds its way to the interior of the tank through the apertures G G.

From the upper part of the valve-chamber a bracket I projects, which is slotted to receive the two pivots J and K, upon which the governing and check-float levers L and M are fulcrumed. Lever M carries the float S at the end of its long arm and the short arm is fitted to bear against the top of the supply-valve E or against any suitable adjusting device, as, for instance, the adjusting-screw H. Above lever M the lever L is fulcrumed on pivot K, to the long arm of which the check-float T is attached, the short arm *l* being fitted to coöperate with arm *m* of the lever M and to reinforce the valve-closing tendency of lever M due to the buoyancy of float S by the buoyancy of the check-float T, which is effected by the impact of arm *l* upon arm *m*, as seen in Fig. 1. The upper side of lever M and the under side of lever L are fitted with provisions for blocking the lever M against the buoyancy of float S while the tank is filling, so as to maintain a constant and uniform waterway between the valve E and its seat F until the tank is practically filled. These blocking provisions are fully shown in Fig. 1 and consist of the following features: A part of the under side of the lever L, as at *q*, is shaped on the arc of a circle of which pivot K is the center. In connection with this face *q* is the shoulder *p*, which together form a jaw. To coact with this jaw, the lever M is fitted with a corresponding device consisting of the arc *o* and the shoulder *r*, which to-

gether make a similar jaw. The curved faces *o* and *q* of the two jaws coincide in this, that when they are brought into contact the two arcs fall in the same curve, so that when the lever *L* is turned on its fulcrum-pivot the faces slide upon each other without imparting motion to the lever *M*.

The operation of the invention is as follows: Assuming the tank to be empty, as seen in Fig. 2, the two floats will occupy the relative positions shown in the figure, that is, the governing-float *S* will rest prone on the bottom of the tank and arm *m* will be elevated to its highest point, so that the inflowing current of water through the supply-valve will keep the valve *E* open. When the water has attained a sufficient depth in the tank to buoy up the float *S*, it will rise until the inner face of jaw *o* strikes the outer face *q* of the upper jaw. Here the further rise of float *S* is arrested and the two levers *L* and *M* stand locked together with the valve depressed somewhat, but still leaving ample waterway through the passages *c'* and *G G*. From this point the water rises around the float *S* until it submerges it, thus gradually increasing the pinch existing between the jaw-faces *o* and *q*. All parts of the apparatus remain in this quiescent state while the water silently fills the tank up to point where it surrounds the check-float *T* and buoys it up to the floating-point. When this point is reached, float *T* commences to rise and gradually the jaws of the two levers begin to open, that is, the upper one begins to slide out of engagement with the lower one until the rising water carries the float up to a point, as in Fig. 4, where the angle or corner of the upper jaw slips over the like corner of the lower jaw, when the locking engagement being broken no impediment exists to the float *S* instantly and forcibly rising, being so impelled by the augmented buoyancy of the same due to its submergence, and as a result the arm *m* instantly and forcibly drives the valve *E* down upon its seat *F*, thus shutting off the supply of water from the tank.

I therefore claim as my invention, and desire to secure by Letters Patent, the following:

1. Automatic valve-closing mechanism, consisting solely of two levers provided with floats arranged in different horizontal planes the said levers being provided with projections for engaging each other when the lower float is lifted by the water to a certain point in order that the further closure of the valve may be checked until the water has reached the upper float and freed the two levers from each other by lifting it, substantially as set forth.

2. In combination with an inlet-valve, a lever provided with a float and bearing on said valve to close same when the water lifts the said float, and a second lever independently pivoted and provided with a float which is in a higher plane than the former float, this second lever being arranged and adapted to engage and lock the first-mentioned lever, until the rising water reaches and lifts the upper float, thereby disengaging the said levers and allowing the lower lever to close the valve suddenly under the influence of its submerged float substantially as set forth.

3. The combination of the two levers *L* and *M* with the floats *S* and *T* arranged on their longer ends, which are in different horizontal planes, means of support to which the said levers are independently pivoted, and the inlet-valve on which the said lever *M* bears for closing the same as its float *S* rises with the water, the said levers being provided near their pivots with corresponding curved faces *o g* and shoulders *p r*, to form jaws which coact to prevent the entire closing of the valve until the upper float *T* is reached in turn and lifted, substantially as described.

In testimony whereof I have hereto subscribed my name this 16th day of February, A. D. 1895.

JOHN M. CLOSSON.

In presence of—
WATSON M. HOLMES,
JAMES M. MILLER.