

A. L. HARRIS.
Automatic Water-Supply Regulators for Cisterns,
Tanks, &c.

No. 146,335.

Patented Jan. 13, 1874.

Fig. 2

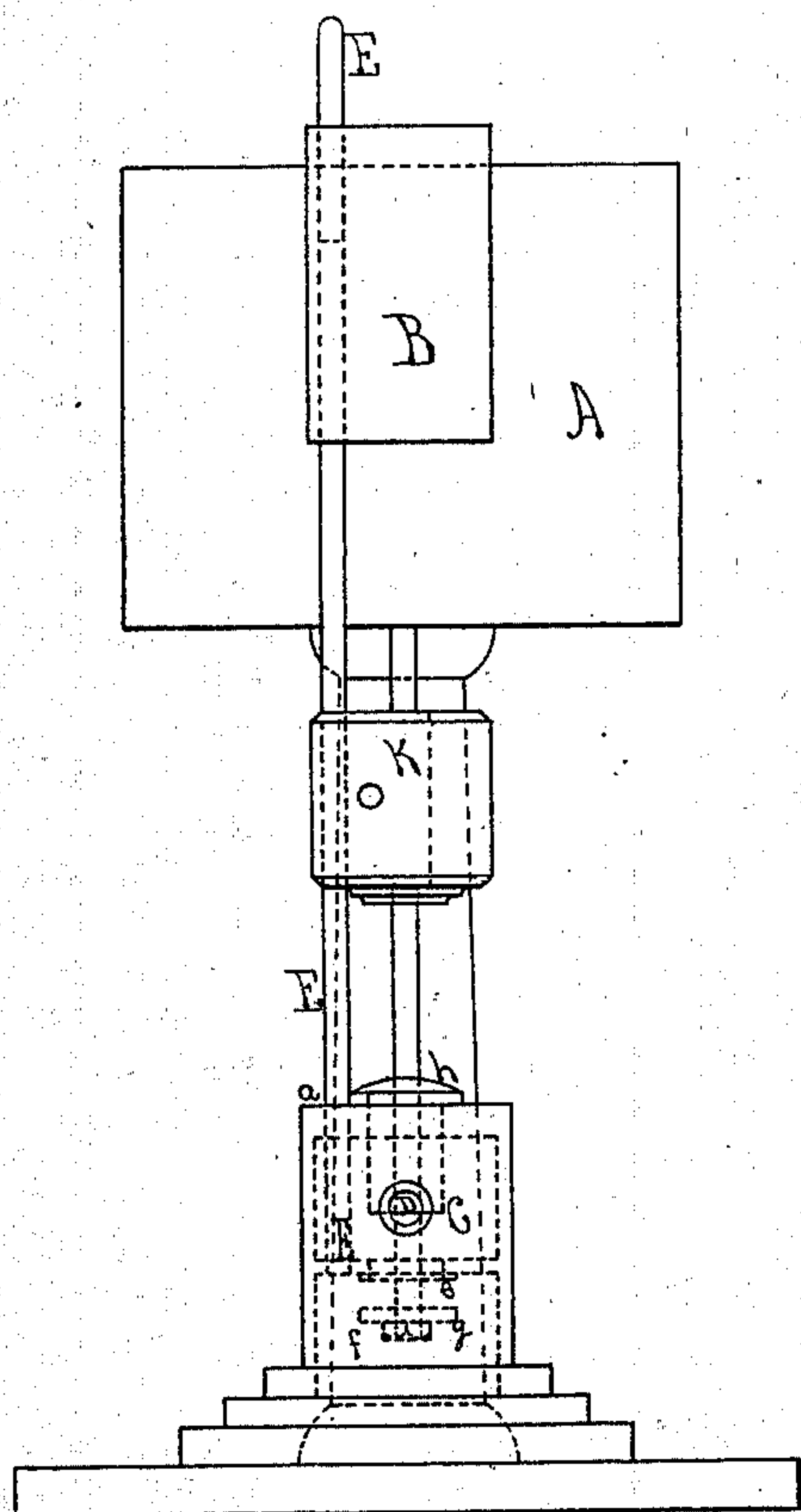
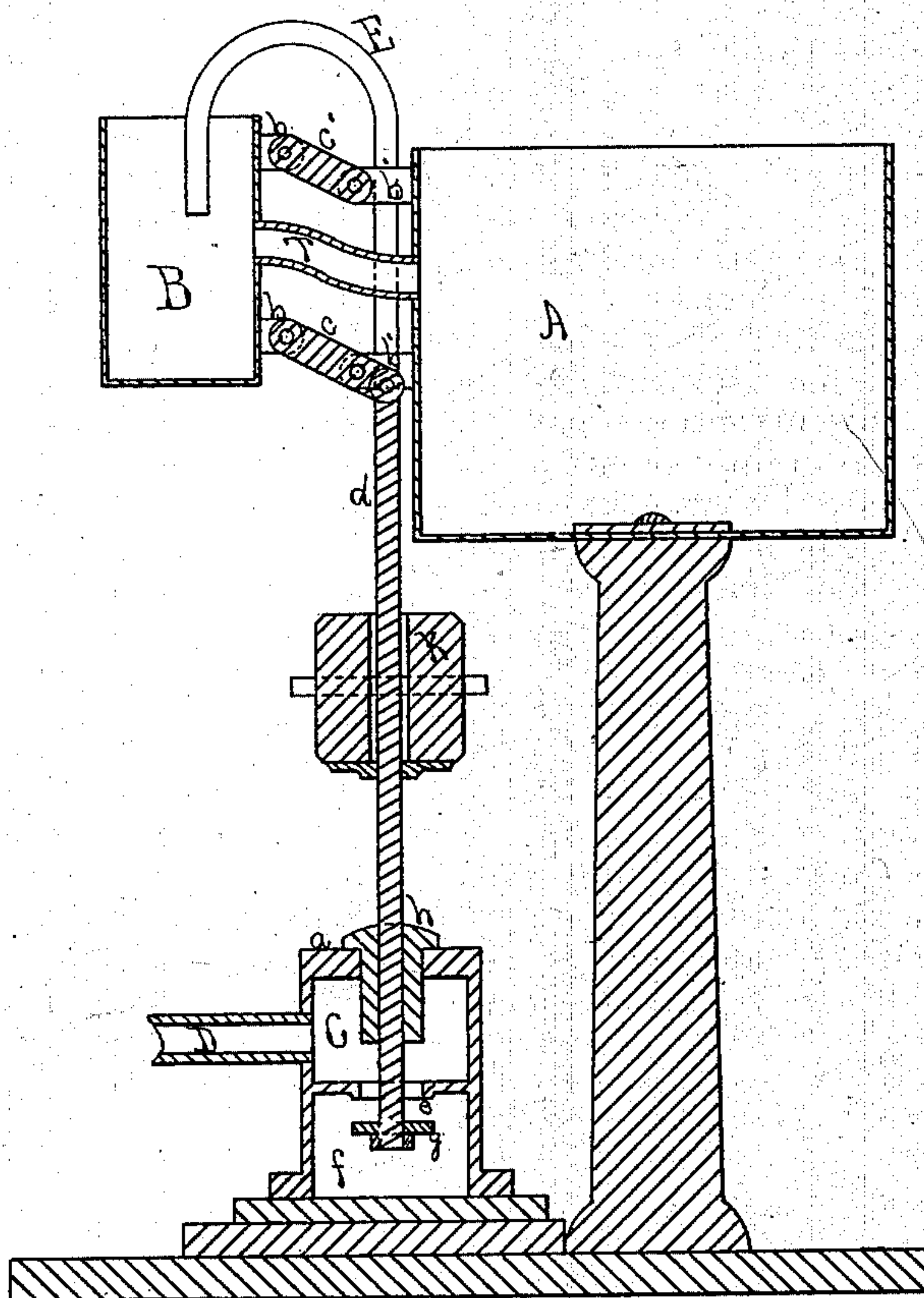


Fig. 1



Witnesses.
 John E. Crane
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ANDREW L. HARRIS, OF MILFORD, NEW HAMPSHIRE.

IMPROVEMENT IN AUTOMATIC WATER-SUPPLY REGULATORS FOR CISTERNS, TANKS, &c.

Specification forming part of Letters Patent No. 146,335, dated January 13, 1874; application filed November 21, 1873.

To all whom it may concern:

Be it known that I, ANDREW L. HARRIS, of Milford, in the county of Hillsborough and State of New Hampshire, have invented certain new and useful Improvements in Automatic Water-Supply Regulators, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings making part of this specification, in which—

Figure 1 represents a vertical central section, and Fig. 2 an end view.

This invention relates to certain new and useful improvements in the apparatus which is used to automatically regulate the supply of water in cisterns, tanks, or reservoirs, that are fed from sources which would overflow them, as from springs above their level, or from street-mains, where the pressure is too great to supply water to the heating device connected with a furnace, or a range, or to the tank of a water-closet, or to a watering-trough for animals, or where the pressure is too limited to supply steam-boilers, requiring the aid of a forcing-pump, or equivalent means, to draw water from a storing-tank and force it into the boiler against the steam pressure.

In my said invention the cistern or storing-tank A may be located in any convenient place where the other parts can be advantageously connected and operated. To the side of the tank A a smaller feed-tank, B, is secured by links or levers *c* and *c'*, which are loosely pivoted to ears or braces *b* and *b'* fastened to each of the tanks. The lower lever *c* extends forward beyond its pivoting sufficient to connect the operating-rod *d*, hereinafter described. A flexible tube, T, extends from the feed-tank B to the tank A, through which water passes from the former to the latter tank. At a suitable distance below the tank A, I place a valve-box or chambered water-receiver, C, constructed, as shown, with a valve-chamber, *f*, and a downward-projecting valve-seat, *e*, and provided with a valve, *g*, seating on the under side, and attached to a rod, *d*, extending upward through a stuffing-box, *h*, and to the lever *c*, to the end of which the rod is loosely pivoted. A supply-pipe, D, enters one side of the chamber C, and a delivery-pipe, E, passes through the top head *a* and through

the chamber C and the web which forms the valve-seat, running upward above both tanks. Its upper end is bent over in the form of a bow, and the free end terminates in the feed-tank B. To the valve-rod *d* a weight, K, is hung as a counter-balance for the tank B when partly filled with water.

To fill the storing-tank, and to keep it properly filled, water is let in through the pipe D, and as the weight K holds the empty or partly-filled tank B above its level with the tank A, as shown in Fig. 1, the lever *c* and rod *d* depress the valve down from its seat, and water passes through the chamber C to the valve-chamber and upward and over through the pipe E into the tank B, and from this through the flexible pipe T into the tank A until filled to near its top, when the tank B will also be nearly filled, and in that condition it will overcome the gravity of the weight, which is of about the same weight, or a little lighter, than the nearly-filled tank, and the latter will settle down to a level with the tank A. The downward movement of the tank B operates the rod *d* through the lever *c* and closes the valve against the under side of the valve-seat, stopping the flow of water through the pipes to the tank B.

When water is drawn from the tank A, it is lowered in both tanks by passing through the pipe T, and, as a consequence, the tank B becomes lighter, and the fixed gravity of the weight overcomes that of the tank, which is raised proportionate to the quantity of water drawn from the tanks. The rising action of the tank B operates the rod *d* and opens the valve, when the water again passes through the pipes to the tanks, as before described.

I regard the link or lever connected feed-tank a new and very useful element, and this, with the rod *d* and the under-seating valve and other parts, a new combination; so also the flexible pipe T, when used with the link-connected feed-tank and the storing-tank, as described. The under-seating valve is believed to be new, when used in combination with its connected parts, and with the feed-pipe E and the link or lever connected tank B, as described. I also consider the feed-pipe E a new and useful element, when applied, as described, in combination with the link or lever connected tank,

I claim as my invention—

1. The link or lever connected feed-tank B, in combination with the weighted rod *d* and the under-seating valve *g* and its chambers *f* and C, and with the pipes D, E, and T, and the tank A, all operating substantially in the manner and for the purpose set forth.

2. The flexible pipe T, in combination with the link or lever connected tank B and with the tank A, for the purpose and in the manner set forth.

3. The under-seating valve and its weighted rod *d*, and chambers *f* and C, in combination

with the feed-pipe E and the link or lever connected tank B, all operating as and for the purpose specified.

4. The feed-pipe E, communicating with the valve-space *f* through the chamber C, in combination with, and leading to, the link or lever connected tank B, all arranged and operating substantially in the manner and for the purpose described.

ANDREW L. HARRIS.

Witnesses:

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