T. VAN KANNEL.

Automatic Cistern Supply-Regulator.

No. 161,457. Patented March 30, 1875.

Fig. 1.

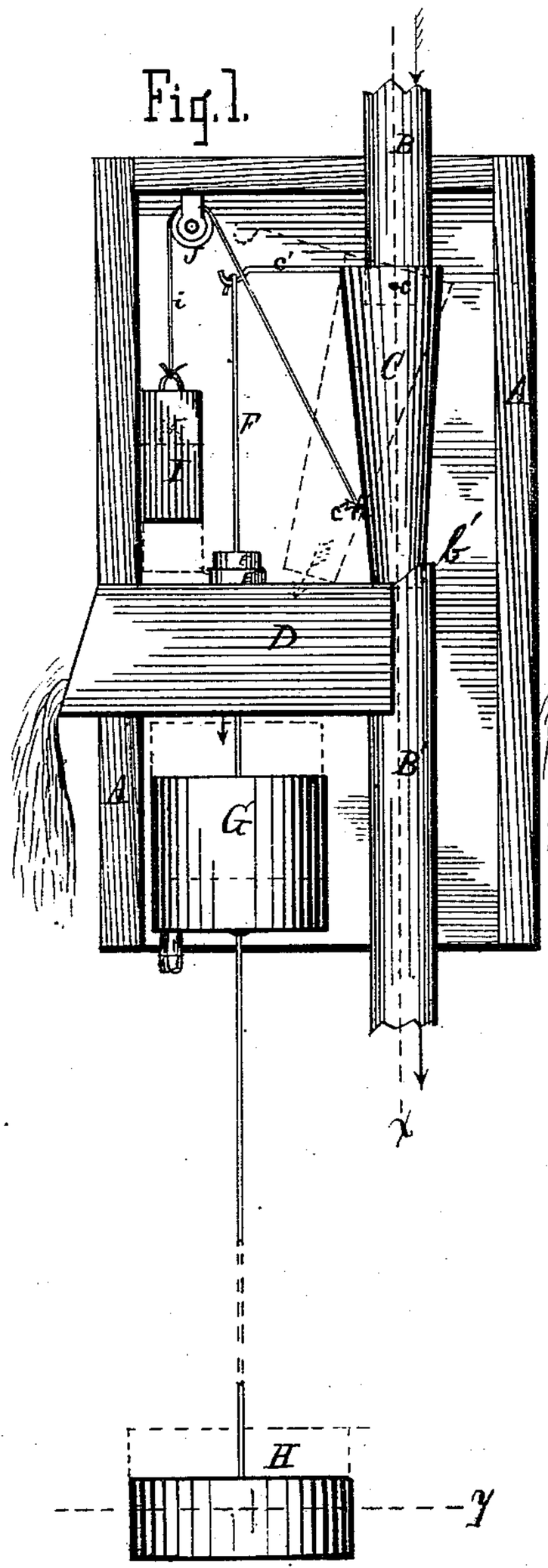


Fig. 2.

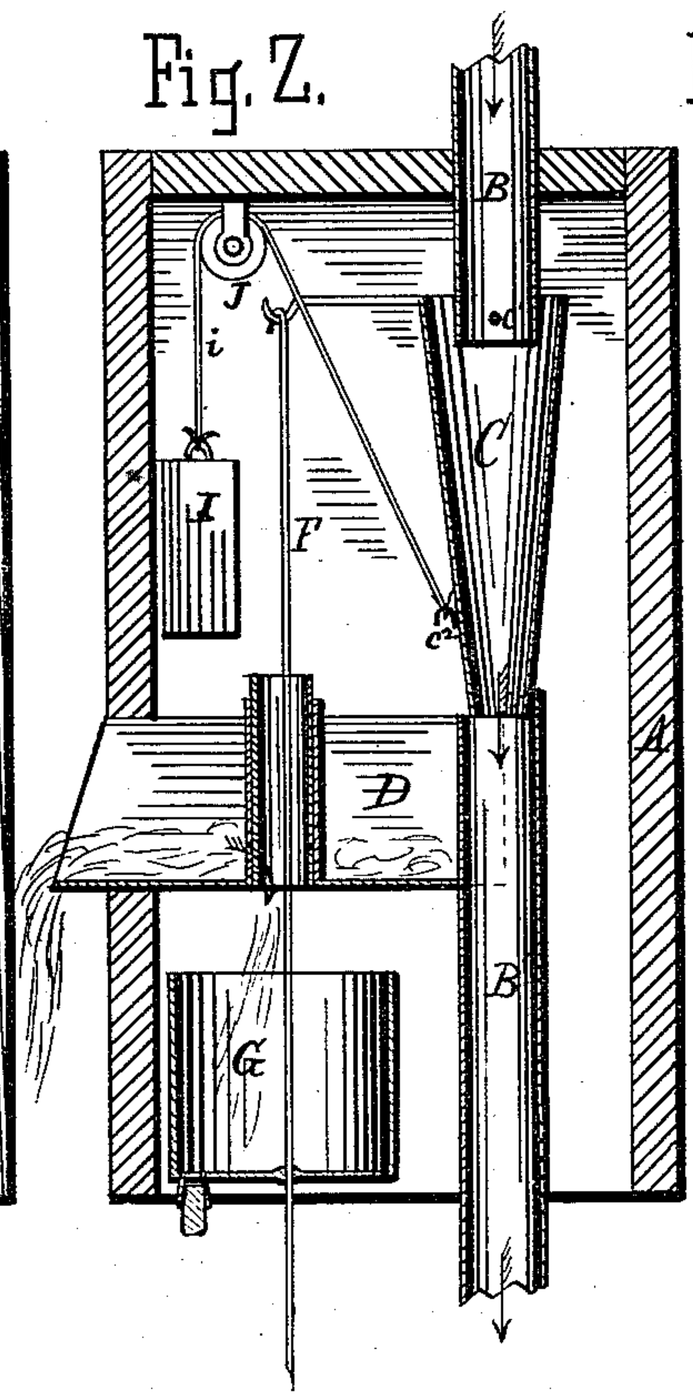
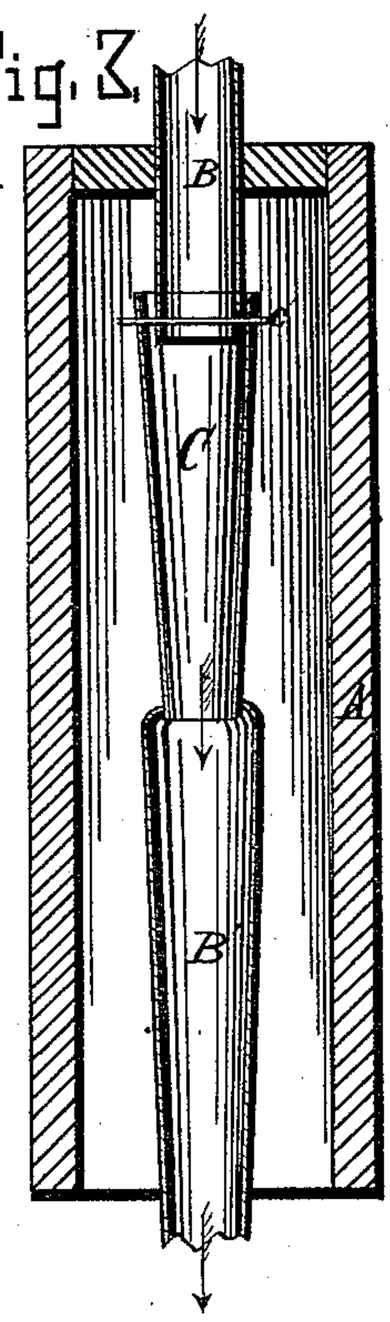


Fig. 3.



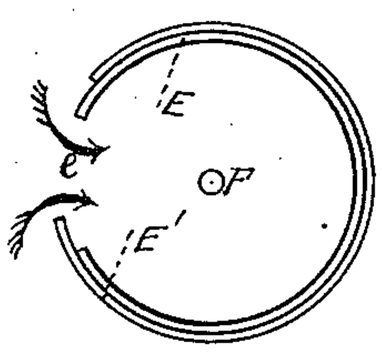


Fig. 4.

R. L. Simonton } Attest
L. Pehr

Inventor
T. Van Kannel

THE GRAPHIC CO. PHOTO-LITH. 39 & 41 PARK PLACE, N.Y.

UNITED STATES PATENT OFFICE.

THEOPHILUS VAN KANNEL, OF CINCINNATI, OHIO.

IMPROVEMENT IN AUTOMATIC CISTERN-SUPPLY REGULATORS.

Specification forming part of Letters Patent No. **161,457**, dated March 30, 1875; application filed October 9, 1874.

To all whom it may concern:

Be it known that I, T. VAN KANNEL, of Cincinnati, Hamilton county, Ohio, have invented a new and useful Improvement in Automatic Cistern-Supply Regulator; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawing making a part of this specification.

Figure 1 is a side elevation; Fig. 2, a vertical section from front to back, taken in the line *x* of Fig. 1; Fig. 3, a vertical section from side to side, taken in the same line; and Fig. 4 represents the variable cut-off in detail and enlarged view.

Similar letters of reference indicate like parts.

The nature of my invention relates to an improved apparatus which, after allowing the first part of a rain-fall to wash the roof, discharging the soiled water, automatically changes the course of the stream into the cistern. It also relates to a device which, when the cistern is sufficiently filled, automatically changes the stream out again, wasting the superfluous water.

In construction my invention is as follows: A A is the case or housing, to which all the working parts are attached. B is the spout conducting the water from the roof into the apparatus, and B′ the same conducting clean water from the apparatus into the cistern, as shown by the arrows marked thereon. At C is a tapering vibrating tube, pivoted to spout B at the point *c*. The spout B′, at its upper end, is provided with a projecting lip, *b′*, to prevent the lower end of tube C swinging too far back. A rectangular trough, D, having its outer end and top open, is attached to the part B′, and also to the case A, which conducts the soiled water out, where it runs off and is wasted. A small tube, E, having an opening, *e*, from top to bottom, is passed just through, and fastened to the bottom of the trough D, said tube being open at both ends. A duplicate, E′, of tube E is slipped over the latter loosely, whereby E′ may be turned over E, thus varying the capacity of the opening *e*, as seen in Fig. 4. To the side and near the top of vibrating tube C is fastened an arm, *c′*, which receives the rod F. This rod passes through tubes E and E′, and has attached to it a vessel, G, just below the trough D. This vessel is provided with a neck to receive the stopper *g*. The rod then passes down into the cistern, where it receives a float, H. At I is seen a weight, held by cord *i*, passing over a friction-pulley, J, and attached to vibrating tube C at or near a point, c^2.

The relative weight of the float H, vessel G, and weight I is such that when the float hangs free and vessel G is empty the weight I is sufficient to draw the lower end of vibrating tube C to a point indicated by the dotted lines, thus elevating both the vessel G and float H. The vessel is made to contain a sufficient quantity of water, which, with the assistance of the weight of the float hanging free, will overcome weight I, thus allowing the tube C to swing back, as seen in the drawing; and, finally, the float is made of such weight that when elevated by the water in the cistern to high-water mark, at *y*, the weight I is sufficient to overcome that of the filled vessel G.

The following proportions of weights of each of the above will be found to operate the apparatus: Weight I, four (4) pounds; empty vessel G, one-half (½) pound; vessel G, filled with water, three (3) pounds; float H, two (2) pounds. Thus the four-pound weight I will overcome the combined weight of the empty vessel G and free hanging float H, which, together, amount to two and one-half pounds, thereby discharging the soiled water. Secondly, the weight of the filled vessel G, combined with the weight of the free hanging float H, which amounts to five (5) pounds, will overcome that of the four (4) pound weight I, thus conducting the clean water into the cistern; and, thirdly, when the water in the cistern buoys the float H, the weight I overcomes the weight of the filled vessel G, which is as four to three, thereby changing the stream out again, wasting the superfluous water.

From the foregoing the operation of my invention becomes obvious. Water entering from the roof through spout B, it being the first of the rain-fall, and containing the soot, dust, insects, &c., is discharged from the tube C, which at first retains the position shown in the drawing by dotted lines, into trough

D. This allows a certain small proportion to flow through the opening *e* of tube E into vessel G, a large proportion flowing out at the open end of trough D. This proportion can be varied by opening or closing the aperture in tube E to different degrees, as above mentioned. When an amount of water has passed into vessel G sufficient to overcome the weight I the tube C changes to a perpendicular position. The stream of clean water is conducted into spout B, whence it finds its way into the cistern. Here it continues to flow to the end of the rain, at any time after which the stopper *g* of vessel G may be withdrawn, emptying its contents, and the apparatus again sets itself to receive and separate the soiled water from the clean, as before. Should the water in the cistern reach and buoy the float H during a rain, it will cause the tube C to again change the course of the stream out, preventing the cistern from overflowing.

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

1. A cistern-supply regulator having the vibrating tube C, vessel G, float H, and weight I, combined to alternately change the stream of the supply, as and for the purpose described.

2. The tube E, with longitudinal opening *e*, combined with cut-off E′, to divide the water conducted into vessel G and that wasted through trough D, as set forth.

T. VAN KANNEL.

Attest:
J. J. MACKLIN,
L. PREHN.