

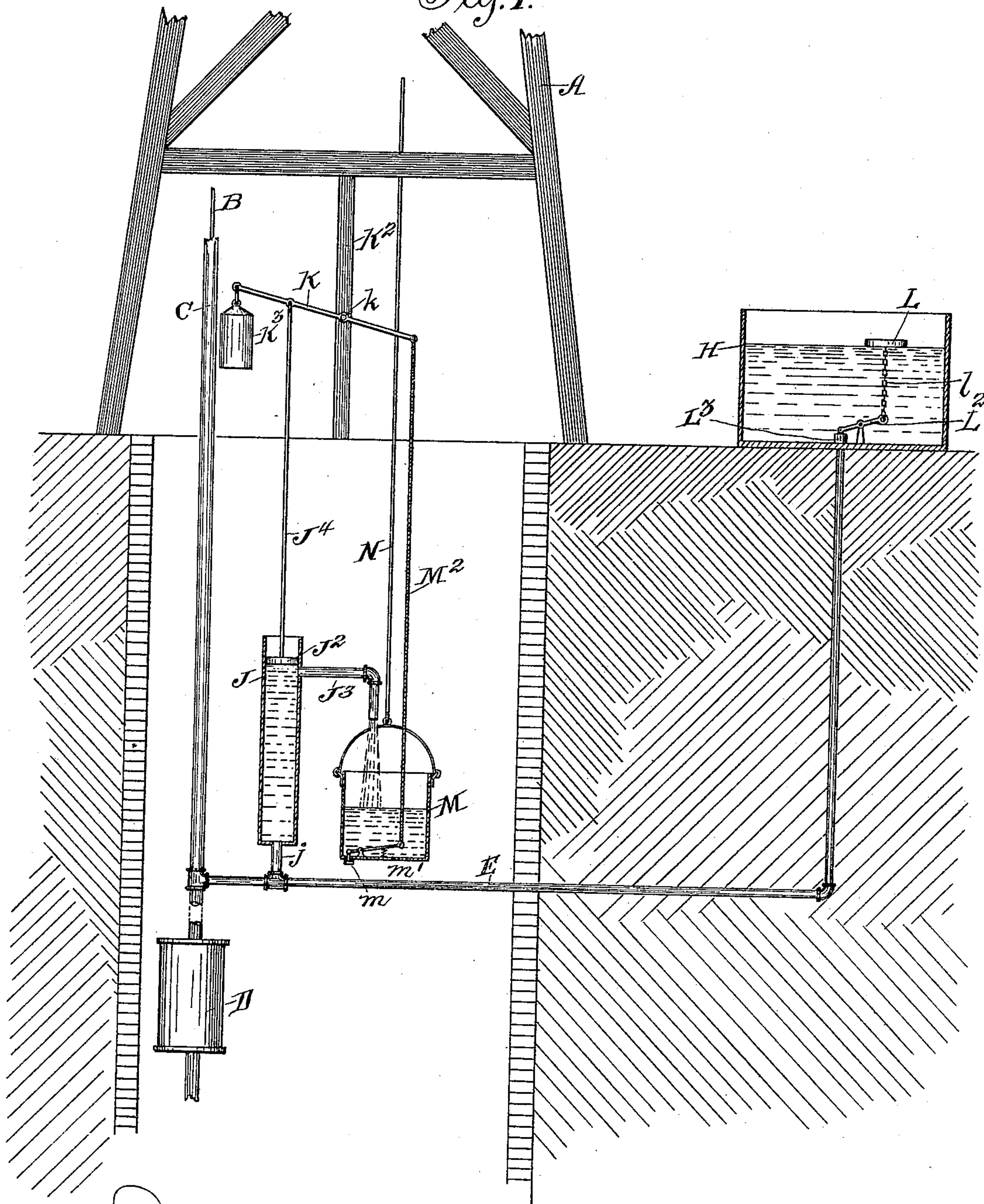
(No Model.)

D. E. SHRAUGER & W. FULTON.
AUTOMATIC REGULATOR FOR WINDMILLS.

No. 459,795.

Patented Sept. 22, 1891.

Fig. 1.



Witnesses:
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UNITED STATES PATENT OFFICE.

DICE E. SHRAUGER AND WILLIAM FULTON, OF EXIRA, IOWA.

AUTOMATIC REGULATOR FOR WINDMILLS.

SPECIFICATION forming part of Letters Patent No. 459,795, dated September 22, 1891.

Application filed October 25, 1890. Serial No. 369,372. (No model.)

To all whom it may concern:

Be it known that we, DICE E. SHRAUGER and WILLIAM FULTON, citizens of the United States of America, residing at Exira, in the county of Audubon and State of Iowa, have invented a new and useful Regulator for Windmills, of which the following is a specification.

Our invention has for its object the provision of means by which when the tank into which the water is being pumped shall become completely filled, the wind-wheel may be automatically withdrawn from action, causing a cessation in the pumping until such a time as that any portion of the body of the water in the tank shall be removed, when the wind-wheel is again brought into action and the pumping resumed.

Our object is further to accomplish this result by mechanism which shall be positive in its action, accomplishing the desired result entirely automatically, and which shall at no time require the intervention of the operator.

Our invention consists in a regulator cylinder or chamber interposed in the circuit of pipes, within which a piston-head travels, which latter is connected to a weighted piston-rod, and a gravity receiving bucket or chamber connected to the mechanism which withdraws the wind-wheel from action, acted upon by the weighted piston and adapted to receive water from the regulator-cylinder when the tank is full and to discharge the same when any portion of the water in the tank is removed.

Our invention consists, further, in certain details of construction hereinafter more particularly described, reference being had to the accompanying drawing, in which—

The figure is a side elevation, partly in section, of my improved device.

A designates the derrick or tower of a wind-mill; B, the pump-rod; C, the pump-pipe, and D the pumping cylinder.

E is a pipe connected to and communicating with the pump-pipe C and leading to the water-receiving tank H.

J designates a regulator-cylinder within which the piston-head J^2 travels, said cylinder having communication with the lead-pipe E by means of branch pipe j , and also having a spout J^3 , opening into the upper portion of

the cylinder J and extending to a point over a receiving-bucket about to be described.

J^4 designates a piston-rod connected at its lower end to the piston-head J^2 and at its upper end to the walking-bar K, pivoted at k to the post K^2 and having depending from one of its ends the weight K^3 .

In the tank H is a float L, which is attached by a chain l to the lever L^2 , to which is secured the valve-flap L^3 .

M is a gravity receiving bucket or chamber having a valve m in its bottom, to which is secured the lever m' , the other end of which is secured to the flexible connection M^2 , the upper end of which latter is connected to the walking-rod K. The bucket M is connected by the rod N to the mechanism by which the wind-wheel may be withdrawn from action, which mechanism may be any one of the many well-known forms.

The operation of my device is as follows, the parts of the same being in the position assumed when the tank H is filled: The water from the well in being pumped normally passes through the lead E and into the tank H, the piston J^3 and head J^2 being at the lowest point of the stroke and the valve L^3 being open and the float riding upon the surface of the water in the tank H and for the time being inoperative. When, now, the tank H becomes filled, the chain l of the float L is drawn taut and the valve L^3 closed, cutting off the entrance of the water into the tank H, which then passes through the branch pipe j into the regulator-cylinder J and pushes the head J^2 and piston J^3 upward against the pressure of the weight K^3 to a point just above the opening of the spout J^3 . The water, following said piston-head J^2 in its upward stroke passes out through the spout J^3 and discharges into the bucket M, the valve m in the bottom of the bucket being closed and the bucket itself lowered by the weight of the water in said bucket. The downward movement of the bucket draws downward upon the rod N, which in turn pulls the wind-wheel out of gear, and the water in the bucket M causes the bucket to remain in its lowest position, holding the wind-wheel out of gear until such a time as that a portion of the water shall be extracted from the tank H, when the valve L^3 opens, the water in the cylinder J

passes out into lead E, the weight K^3 causes the piston J^4 and piston-head J^2 to resume their position below the spout J^3 at the lower end of the regulator-cylinder J, the end of the walking-rod to K, to which the valve-rod M^2 is attached, drawing latter upwardly, opening the valve m and permitting the discharge of the water from the bucket M, and at the same time the said bucket M, returning into its uppermost position, throwing the wind-wheel or permitting it to be thrown into gear to resume pumping.

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

1. The combination, in a windmill-regulator, of a regulator-cylinder interposed in the circuit of pipe leading to the receiving-tank, which latter has therein an automatically-acting valve, a weighted piston acted upon by the water which enters the regulator chamber or cylinder when the tank is filled, and a receiving-bucket connected with the mechanism by which the wind-wheel is thrown into or out of gear, adapted to receive the water from the regulator chamber or cylinder, and provided with a valve adapted to permit the discharge of the water when any portion of the water in the tank is extracted, as and for the purposes set forth.

2. The combination, in a regulator for windmills, of a regulator chamber or cylinder having communication with the pipe leading from the pump to the receiving-tank, through

which the water normally passes, said receiving-tank having an automatic valve therein, a weighted piston acted upon by the water entering the regulator chamber or cylinder, a receiving-bucket connected with the weighted piston and also with the mechanism for throwing the wind-wheel in or out of gear, said bucket being located so as to receive the water from the regulator chamber or cylinder, and a valve in said bucket connected with the weighted piston to permit the discharge of the water in said bucket, as and for the purposes described.

3. The combination, in a regulator for windmills, of a regulator-cylinder connected with the lead from the pump to the receiving-tank, which latter has a float therein acting upon a valve to close the same when the tank is filled, said regulator-cylinder having a discharge-spout approximately at its upper portion, a piston-head traveling in said regulator-cylinder, a piston-rod connected at one end to said head and at the other to a weighted pivoted walking-rod, a receiving-bucket provided with a valve connected to the walking-bar, and means of connection between said bucket and the mechanism for throwing the wind-wheel into and out of gear.

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