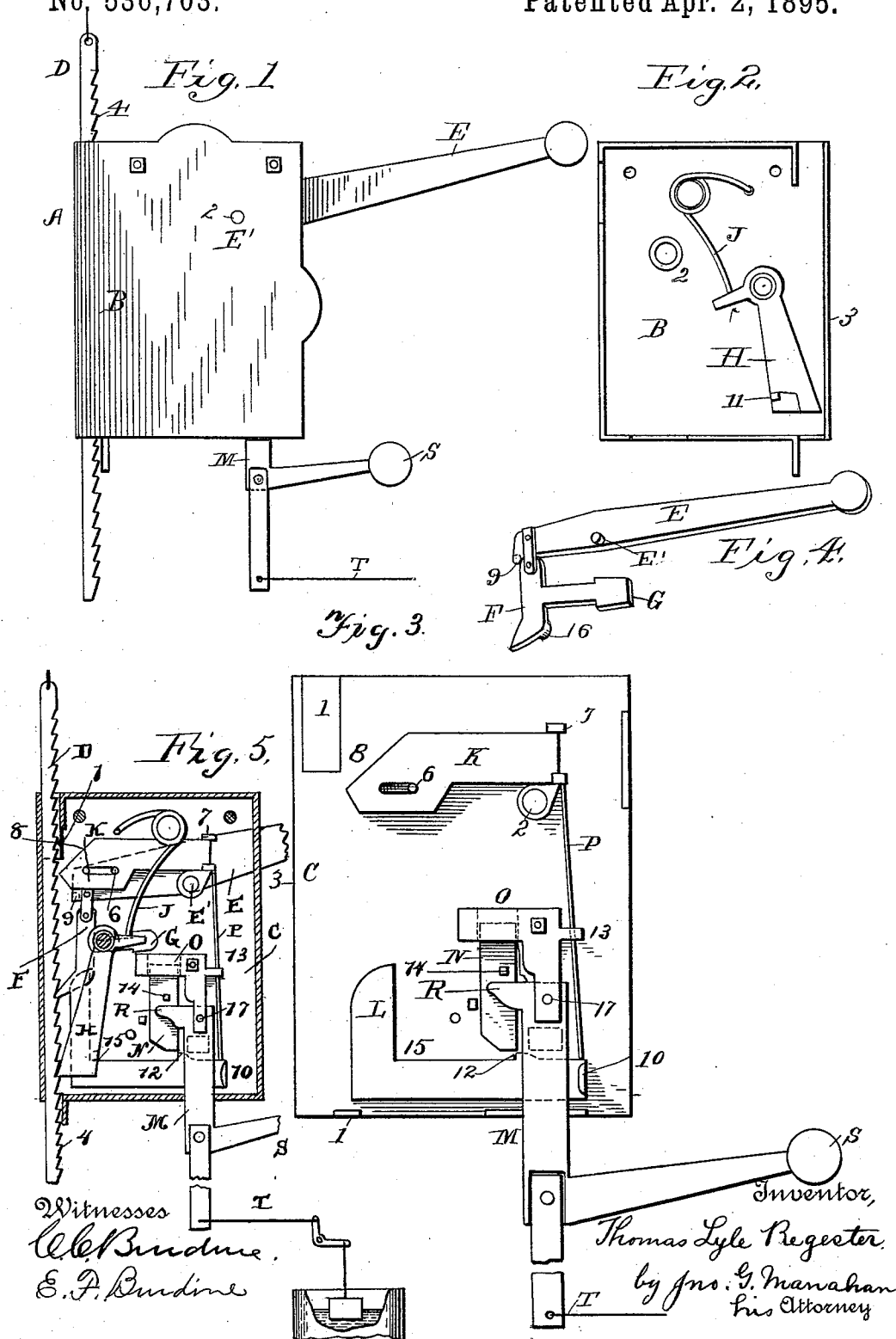


(No Model.)

T. L. REGESTER.
AUTOMATIC WINDMILL REGULATOR.

No. 536,703.

Patented Apr. 2, 1895.



UNITED STATES PATENT OFFICE.

THOMAS LYLE REGESTER, OF STERLING, ILLINOIS.

AUTOMATIC WINDMILL-REGULATOR.

SPECIFICATION forming part of Letters Patent No. 536,703, dated April 2, 1895.

Application filed March 28, 1894. Serial No. 505,405. (No model.)

To all whom it may concern:

Be it known that I, THOMAS LYLE REGESTER, a citizen of the United States, residing at Sterling, in the county of Whiteside and State of Illinois, have invented certain new and useful Improvements in Automatic Windmill-Regulators; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

My invention has reference to improvements in automatic windmill regulators, and pertains to that class of regulators in which the vertical movements of the pump-rod are utilized to draw the wind-wheel out of the wind, at and during such periods as it is desired to suspend the operation of the wheel.

The engagement of the pump-rod with the mechanism for withdrawing the wheel, as aforesaid, is set in motion by the ascent of the usual float in the water tank; but, as the operation of the float is well known, I do not deem it necessary to show or describe the same in this application, but will confine the description herein to those features which I claim to be new, together with their relation to, and co-operation with other well known parts, so as to render intelligible the construction, application, and operation, of my invention.

In the drawings, Figure 1 is a side elevation of the frame or metallic box A, containing the mechanism involved in my invention. Fig. 2 is an inside view of the side B with a detaining pawl, and its actuating coiled spring connected therewith. Fig. 3 is a side view of the inside of side C of box A, being the side farthest from the beholder in Fig. 1, showing all of the parts attached to the inner surface of said side C. Fig. 4 is a view of the lever operated by the pump-rod, as aforesaid, and is shown removed from its position in Fig. 3, so as not to conceal the underlying parts in the latter figure, and Fig. 5 is an elevation of the interior of the box with the outer portion of the side B removed, and the side sectioned to show the relative arrangement of the parts, and also showing the connection with a float in the water trough.

Similar letters and numerals refer to similar parts throughout the several views.

1—1 are simply prominences formed on side C to enter corresponding recesses in the rim of side B, to lock the two sides from lateral movement.

Referring to Fig. 1, D is a vertical notched bar passed through box A, and suspended from the ordinary wire, which, through its connection with the wind wheel, when drawn downward, draws said wheel out of the wind.

E is the actuating lever aforesaid, fulcrumed in box A and extending past the face of the usual pump-rod, and is raised, when desired, by engaging the ledge or lug formed on said pump-rod below lever E. As the engagement of the pump-rod with the lever is of the ordinary construction and forms no part of my invention, I have not shown it in the drawings. The opposite end of lever E is projected within the box A, and the trunnions E' of said lever seated in the openings 2—2, formed, respectively, in the sides B and C.

It will be noticed that the edge 3 of side B (Fig. 2) is against the edge 3 of plate C (Fig. 3), when in position.

A pawl F (Fig. 4) is pivotally attached to the lower side of the inner end of lever E, and provided with a weighted arm G to secure the engagement of said pawl with the notched draw rod D just before, and when the long end of said lever is raised by the pump-rod, as aforesaid.

Referring to Fig. 2, H is a pawl pivoted in side B, and adapted at its lower end to engage the notches on bar D alternately with the engagement of pawl F, and to hold bar D from rising when lever E drops at its long end to re-engage bar D at a higher point. Pawl H is held adjustably in engagement with rod D by the coiled spring J seated in said side B.

The conformation of the notches 4 of bar D is such that they can pass downward, by the force of pawl F, between pawl H and the edge of side B, by forcing said pawl inward.

K (Fig. 3) is a movable stop, provided with a slot 5 placed against the side C, and held by a short stud 6 formed on said side, and projected within said slot, and also held between ways formed by the stud 7 and the raised wall of the opening 2. The engaging end 8

of stop K is formed with a beveled projection, which, when the wind-wheel is running, is thrown, as hereinafter described, over a small lug 9 formed on the inner end of lever E at the side thereof next to the plate C, and in that position holds the long end of said lever up at its highest elevation so that the recurring movements of the pump-rod do no longer engage it.

L is a trip, operated by the arm M, the latter being suitably connected to the wire operated by the float. The arm M is pivoted on the plate or side C at its upper end on a suitable pin 17, formed on said plate. A lug 10 is formed on the extremity of the trip L, and engaged by the arm M when the latter is drawn from the rod D by the float wire, the effect being to draw the trip L from said rod D, and the angle 15 of the trip L engaging a lug 11 formed on the pawl H, and the upright portion of trip L engaging a lug 16 on the lower end of pawl F next to plate C draws both of said pawls out of engagement with the rod D.

A vertical key N, working loosely at its upper end in the bracket O attached to the side C, is adapted, when the trip L is thus withdrawn, to drop down in front of the recess 12, formed on the upper side of trip L. In this position both pawls F and H are withdrawn from engagement with the notches 4 in rod D, and permit the rod D to rise, and the wind-wheel to swing into the wind.

A straight heavy wire P passed through a projection 13 formed on the end of bracket O, and inserted at its upper end in stop K and at its lower end in trip L when the trip L is thrown back as aforesaid by the arm M, throws and holds the stop K forward, as aforesaid, above the lug 9 on lever E at the next upward movement of lever E.

The arm M is thrown against the lug 10 and withdraws the trip L, as aforesaid, by means of a short bell-crank lever attached to the float at its long end, and to the lower end of said arm M at its short end, so that when the water in the tank has fallen, the arm M, by engagement with lug 10, withdraws the trip L and the pawls F and H, and releases the rod D, as aforesaid.

When the water in the tank rises to a certain altitude, the float wire attached as aforesaid to the lower end of the arm M suspends its draft, and permits the counterpoise weighted lever S to throw arm M toward the rod D, and a lateral projection R on the end of said arm, which projects over the key N, engages the under side of a lug 14 formed on said key, and raises said key out of engagement with recess 12 of trip L, which releases pawls H and F, and permits said pawls to re-engage the rod D, the wire P throwing stop K back from lug 9 on lever E, thus permitting the long end of lever E to drop, so as to be engaged and lifted by the pump-rod, as aforesaid, and begin the process of forcing the rod

D down, and drawing the wind-wheel out of engagement with the wind.

The operation of my invention is as follows: Starting with the water tank empty, the float wire T, more than counter-acting the counterpoise S, will have drawn the arm M to the limit of its out stroke, in which position said arm having engaged the lug 10 will have drawn trip L outward, and by the engagement of said trip with lug 11 on pawl H, and the lug 16 on pawl F, will have drawn said pawls out of engagement with rod D, and the latter, therefore, being at the limit of its up stroke, the wind-wheel will be in the wind, and the pump operating to fill the tank. Meanwhile key N, having engaged recess 12 of trip L, the parts will be held for the time permanently in the position just described. Also the last preceding stroke of the pump-rod having thrown the long end of lever E up, and its short end down, the end 8 of stop K will be over the lug 9 on the short end of lever E, and hold the long end of the lever so high that the lug on the pump-rod, at the limit of its up stroke, will only reach the lower side of said lever, and not actuate the latter. When the water shall have risen in the tank as high as it is desired, the float wire T will be slackened, and no longer resist the influence of counterpoise S, when the weight of the latter will throw arm M toward rod D, thereby releasing trip L, which will be thrown toward rod D by the reaction of lug 11 of pawl H, and spring J will throw pawl H into engagement with rod D. At the same time projection R of the arm M, lifting on lug 14 of key N, raises the latter out of engagement with recess 12 of trip L, so as to permit said trip to move toward rod D, as aforesaid. The retaining pressure of the upright portion of trip L on lug 16 of pawl F being ended, the weight G will throw pawl F into engagement with notches 4 on rod D. At this point both pawls F and H, being in engagement with rod D, the succeeding vertical movements of the pump-rod, engaging the long end of lever E, will proceed to gradually work the rod D downward. When the latter has been forced down so far that the pawl F has reached the upper recess 4 of rod D, the wind-wheel will have been drawn out of the wind, and the movement of the entire mechanism is suspended, and nothing further is done until the lowering of the water in the water tank draws the arm M against lug 10 of trip L, and thereby withdraws pawls F and H from the recesses 4 of rod D, and permits the wind-wheel to draw said rod up and again begin the operation of refilling said tank.

The purpose of the key N working in conjunction with the trip L is to prevent the pawls F and H from being let into the recesses 4 of the rod D, in any degree, until the float has risen sufficiently to let them into full engagement with recesses 4. Without the locking effect of the key N, the gradual rising

of the float would permit said pawls to gradually engage recesses 4, and the effect would be to either break the end off the pawls or to tear the edges off of said recesses.

5 In the present construction, the relation of the arm M to lug 14 on the key N is such that, when the arm M is swung toward rod D far enough to raise key N out of engagement with recess 12, said arm has moved inward
10 from lug 10, and when the key N is released there is space enough between lug 10 and the arm M to permit trip L to move far enough toward rod D to allow an instantaneous and complete engagement of both of the pawls F
15 and H with the recesses 4 of rod D.

It will be noticed that all of the working mechanism is inclosed in and protected by the box A, and therefore its operation not rendered uncertain by the accumulation of
20 ice or snow during the winter season.

What I claim as my invention, and desire to secure by Letters Patent of the United States, is—

1. The combination of a vertical notched
25 bar D, suitably connected to the withdrawing mechanism of a wind-wheel; and the lever E, adapted to be actuated by the pump-rod, a weighted pawl connected with the inner end thereof to engage said rod D, and provided
30 with a lug 16; a coincidently acting pawl H provided with lug 11; and trip L, adapted to

coincidently engage lugs 16 and 11, and retain the pawls F and H from engagement with rod D; substantially as shown, and for the purpose described.

2. The combination of a vertically moving
35 recessed bar D, suitably connected to the withdrawing mechanism of a wind-wheel; lever E provided with pivoted pawl F, adapted to normally engage rod D; pawl H also
40 adapted normally to engage rod D; trip L provided with recess 12, and adapted to coincidently engage both of said pawls; arm M provided with extension R; key N provided with stud 14, and adapted to engage recess 12
45 in the withdrawal of said trip; and means substantially as shown for actuating said arm M; for the purpose described.

3. In combination with a vertically acting
50 recessed rod D, lever E provided with pivoted pawl F and lug 16, and adapted to engage rod D; reciprocating stop K; a spring P adapted to throw stop K above said lug 16, and thereby suspend the operation of lever E; substan-
55 tially as shown, and for the purpose described.

In testimony whereof I affix my signature in presence of two witnesses.

THOMAS LYLE REGESTER.

Witnesses:

MARTHA W. BARRETT,
JOHN G. MANAHAN.