(No Model.)

T. L. REGESTER.

WINDMILL GOVERNOR.

No. 492,488. Patented Feb. 28, 1893.

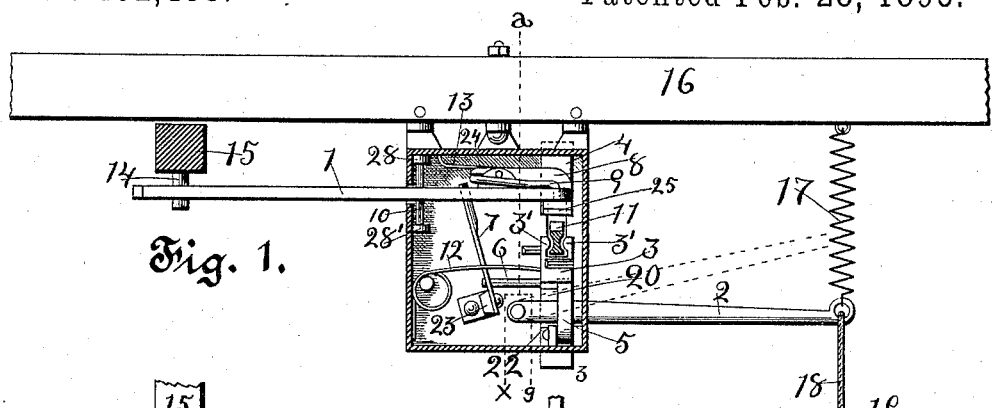


Fig. 1.

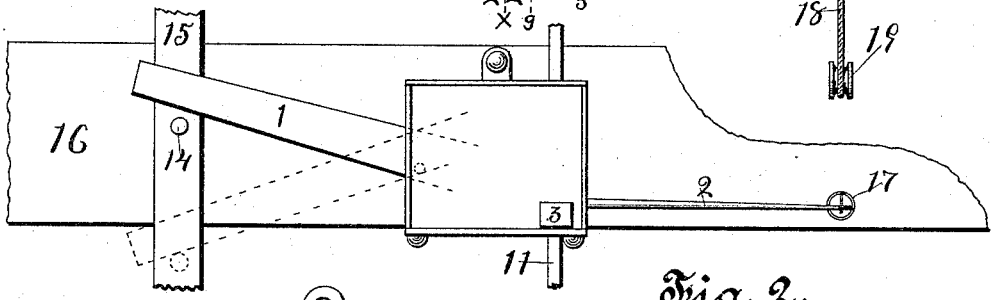


Fig. 2.

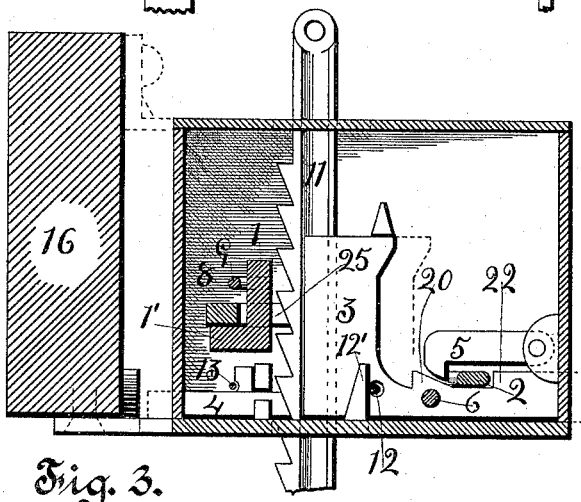


Fig. 3.

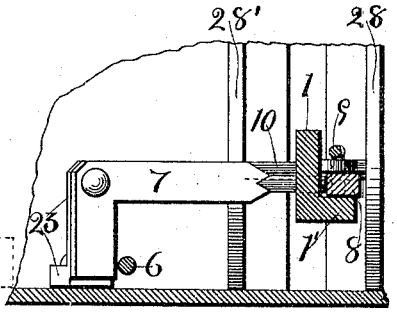
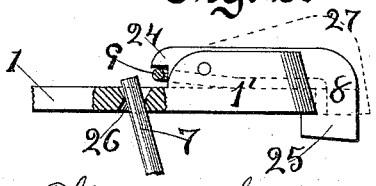


Fig. 4.

Fig. 5.



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UNITED STATES PATENT OFFICE.

THOMAS LEIL REGESTER, OF BLAIR, NEBRASKA, ASSIGNOR TO CHRISTOPHER C. DENNY AND OSIAS A. FARLEY, OF SAME PLACE.

WINDMILL-GOVERNOR.

SPECIFICATION forming part of Letters Patent No. 492,438, dated February 28, 1893.

Application filed November 5, 1892. Serial No. 451,108. (No model.)

To all whom it may concern:

Be it known that I, THOMAS LEIL REGESTER, a citizen of the United States, residing at Blair, in the county of Washington and State of Nebraska, have invented a new and useful Windmill-Governor, of which the following is a specification.

My invention relates to governors, for windmills used for pumping water, by which the water in an adjacent tank is kept at or near a predetermined height; and the objects of my invention are, first, to provide a governor that will automatically disconnect itself from the action of the pump and remain entirely at rest while the mill is pumping, thus avoiding much unnecessary wear; second, to pull the mill out of the wind and thus stop the pump, by an up stroke of the pump rod, thus disposing of all lost motion in joints between the governor and mill-crank; third to provide a governor set for mills of the minimum length of stroke, working equally well on mills of long stroke, utilizing only a fixed portion of the stroke; fourth, to avoid all lateral movement of the lever by which motion is transmitted from the pump-rod to the governor keeping its action in one vertical plane parallel to and adjacent to the pump rod. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a top view of the machine as applied, the upper part of the inclosing case being removed. Fig. 2, is a side view of same. Fig. 3, is a detailed vertical section on the broken line *a g* looking toward the spiral spring 17, in Fig. 1. Fig. 4, is a detailed vertical section on the broken line *a x* in Fig. 1, looking toward the pump rod 15; and Fig. 5, is a detailed plan of the lower portion of the end of the lever 1 within the inclosing case.

Similar numerals refer to similar parts through out the several views.

The reciprocating guide-block 3 is seated on the bottom of the inclosing case, retained loosely in place by lugs projecting from the inner walls of the case, and by passing the end of the horizontal part through the wall as shown; the upright part of the block has in its face adjacent to the inner end of the lever 1, a perpendicular groove with convex lips 3′ and 3′ projecting toward each other; the ratchet bar 11 is fastened to the lower end of the line for pulling the mill out of gear or out of wind, by tying the line in the eye at the upper end of the bar which is thus loosely suspended through apertures in the top and bottom of the case; the bar has on each side near its back edge a concave groove to loosely receive the convex lips 3′ and 3′ the opposite edge of the bar is provided with ratchet teeth hooked upward. The lever 1 is supported and fulcrumed by the shaft 10, journaled in the ribs 28 and 28′ to vibrate in a vertical plane the inner end provided with the laterally-swinging-pawl 8 having the forward end bent toward and adapted to engage the teeth of the ratchet-bar, the pawl 8 being forced toward the bar by the wire spring 9 pressing against its rearward projecting end 24 and allowing the pawl to be forced sidewise to the position shown by the broken line 27, in order to pass the teeth on the bar; the upper part of the lever projects over the pawl to reinforce its strength and the part 1′ is widened out under the pawl to prevent it from twisting, and forms one of the ears between which it is pivoted; the center of gravity of the lever with its pawl and other attachments is outside of the case so that the outer end normally falls or rests on the pin 14 projecting from the side of the pump-rod 15.

A sliding pawl or detent 4 actuated by the spring 13 is located on the bottom of the case directly beneath the inner end of the lever 1, which engages the ratchet-bar and holds it down while the pawl 8 is rising. The reciprocating-guide-block 3 has an aperture to loosely receive the free end of the wire spring 12, which forces the block forward toward the pawl 8, and detent 4, until they are in working contact with the ratchet-bar and the spring rests against the lug 12′ on the bottom of the case, (see Fig. 3;) the horizontal part of the guide block has a tooth 20 projecting upward and adapted to engage the gravity hook 5 which holds the guide-block back against the tension of the spring 12, to the position indi-

cated by the broken lines in Fig. 3; the upper surface of this part is also provided with the shoulder 22. The lever 2 has its inner end pivoted to the bottom of the case and rests across the guide block between the tooth 20 and the shoulder 22, passes out through a horizontal slot in the side wall, and is provided with an eye at its extreme outer end to which one end of the rope 18 is attached, the rope then is carried over a pulley 19 and down, the other end attached to a float in the tank. The spiral spring 17 has one end attached to the eye in the end of the lever and the other end fastened to the two by six scantling 16, and tends to draw the lever around to the position indicated by the broken lines, against the weight of the float. The arms 6 project horizontally from the side of the guide-block and engages the downward projecting arm of the bell-crank lever 7 on the side toward the lever 1. The bell-crank lever pivoted to the post 23 has the end of its horizontal arm made round and loosely inserted through a double counter-sunk aperture through lever 1 between its fulcrum and the pawl 8.

The principal working parts of the machine are as near as possible assembled within a cast iron case, made in sections bolted together, and adapted to be bolted or screwed to the two by six timber 16, which is attached to the base of the tower so as to bring the pump-rod 15 in the relative position shown, and place the pulley 19 immediately above the required float in the tank.

In operation the relative movements of the several parts are substantially as follows. When the tank becomes filled raising the float and stacking on the rope, the spring 17 draws the lever toward and along the inclined top of the tooth 20 between it and the gravity hook 5; this raises the hook and releases the guide-block, the spring 12 then moves the guide-block carrying the ratchet-bar into engagement with the pawl 8 and the detent 4; the arm 6 also moves away from the downward projecting arm of the bell-crank lever, this releases the inner end of the lever 1 carrying the pawl 8, the outer end descends by its weight to be raised by the pin 14 projecting beneath it, from the pump-rod 15; the outer end of the lever 1 rides up and down on the pin 14 until the ratchet bar has been drawn down sufficient to pull the mill out of gear, when the mill and governor rest, until the water becoming lowered in the tank the weight of the float draws lever 2 against the shoulder 22 forcing the guide-block back, carrying the rack-bar away from the pawl 8 and detent 4, thus releasing it, when it ascends putting the mill in gear, the arm 6 engages the bell-crank lever which depresses the inner end of lever 1, and raises the outer end to a point about one fourth inch above the highest point reached by pin 14, the gravity latch 5 engages the tooth 20 and retains all the parts in these positions while the mill is pumping, until the water in the tank has again reached the desired height when the governor will again arrest the operation of the mill.

It will be observed that all parts of the governor are at rest while the mill is pumping, the outer end of the lever 1, being elevated above the range of action of the pin 14; also that, the pin may descend any distance in long stroke mills, the governor only utilizing a fixed portion of stroke; also as the ratchet-bar approaches and recedes to and from the pawl 8 and detent 4, no lateral motion of the lever 1 is necessary, hence it is pivoted to work in a distinct vertical plane, always accurately striking the pin 14.

The governor will work well with out the gravity hook 5, the tooth 20 and the spring 17, but will not work as accurately or keep the water as near a fixed height; it will also perform its work well with out the arm 6 and bell-crank lever 7 but in such cases lever 1 would rest continually on the pin 14 and thus be exposed to almost constant wear.

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

1. In a wind mill governor the combination of lever 2 pivoted at one end actuated by the weight of a float to bear against the shoulder 22 on the reciprocating guide-block 3 carrying the ratchet-bar 11 and actuated against the weight of the float by the spring 12 with the lever 1 pivoted between its ends, having the pawl 8 at one end set to engage the ratchet-bar the opposite end connected with the pump-rod, the ratchet-bar 11 connected with the wind-mill gear, and the detent 4 set to engage the ratchet-bar 11 substantially as shown and described.

2. In a wind mill-governor the combination of the reciprocating guide-block 3, carrying the ratchet-bar 11 connected with the wind-mill-gear, and having the inclined topped tooth 20, and the shoulder 22, the lever 2 pivoted at one end across the guide-block between the tooth and the shoulder, actuated toward the tooth by the spring 17, and toward the shoulder by the weight of a float, the hook 5 set to engage the tooth 20, with the lever 1 pivoted between its ends, having the pawl 8 at one end set to engage the ratchet-bar 11, the opposite end connected with the pump rod, and the detent 4 set to engage the ratchet-bar substantially as shown and described.

3. In a wind mill governor the combination of the reciprocating guide-block 3 carrying the ratchet-bar 11 connected with the mill gear, and having the inclined topped tooth 20 the shoulder 22 and the arm 6, the lever 2 pivoted at one end across the guide-block between the tooth and shoulder, impelled toward the tooth by the spring 17, and toward the shoulder by the weight of a float, with the lever 1 pivoted between its ends having the pawl 8 at one end set to engage the ratchet-

bar 11, the opposite end normally falling on a pin projecting from the pump rod, the detent 4 set to engage the ratchet-bar, the bell-crank lever 7 one arm set to engage the arm 6, the other arm loosely connected to lever 1 adjacent to the end having the pawl 8 substantially as shown and described.

Signed at Blair, in the county of Washington and State of Nebraska, this 1st day of November, 1892.

THOMAS LEIL REGESTER.

Witnesses:
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J. W. MAYLE.