

No. 636,952.

Patented Nov. 14, 1899.

W. W. CHANEY.
WIND WHEEL REGULATOR.

(Application filed May 12, 1899.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.

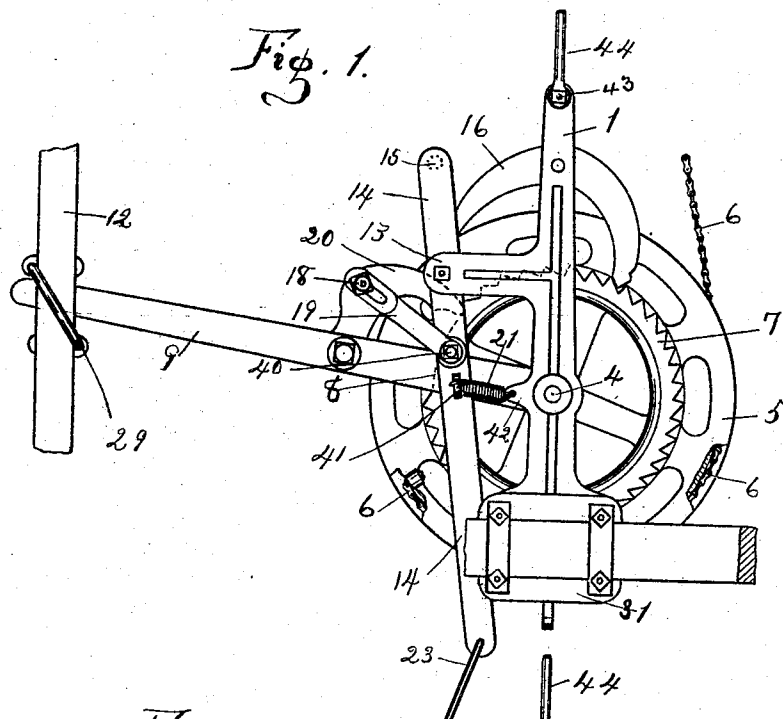
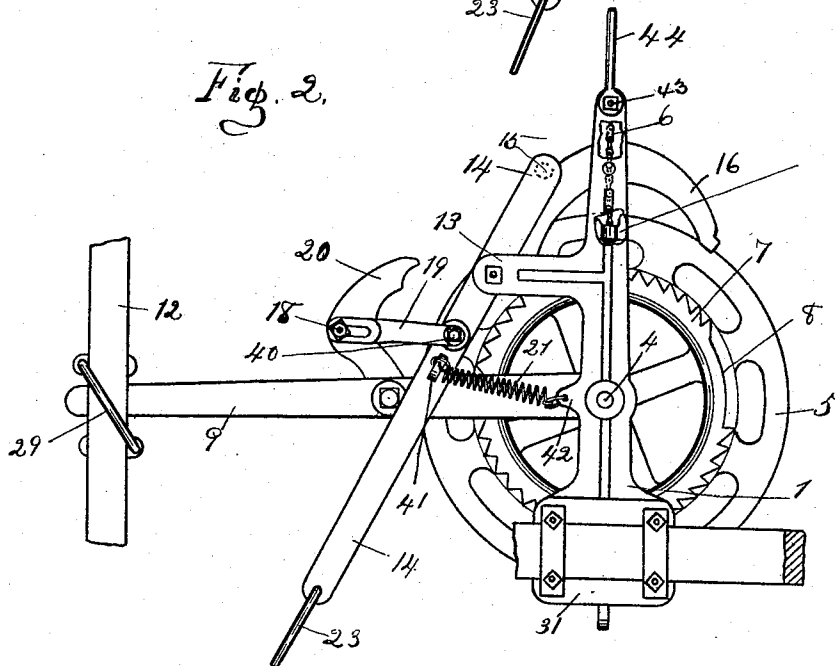


Fig. 2.



WITNESSES:

Odelaide Kearns.
Ada Crawford.

William W. Chaney INVENTOR

By Chapin & Denny
His ATTORNEYS.

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2 Sheets—Sheet 2.

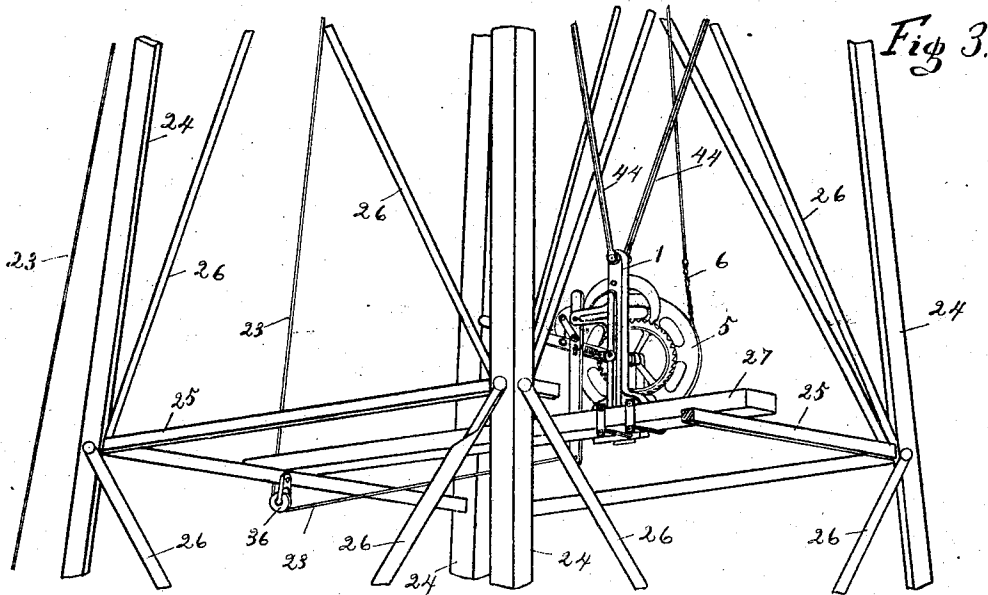


Fig. 3.

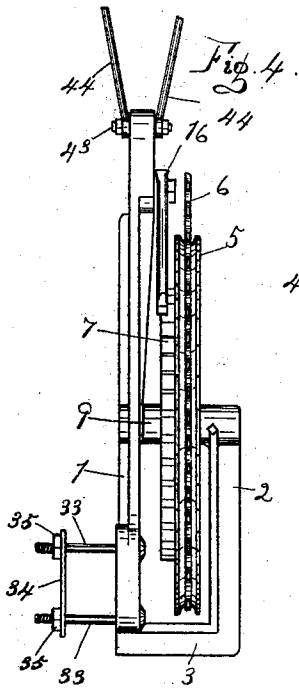


Fig. 4.

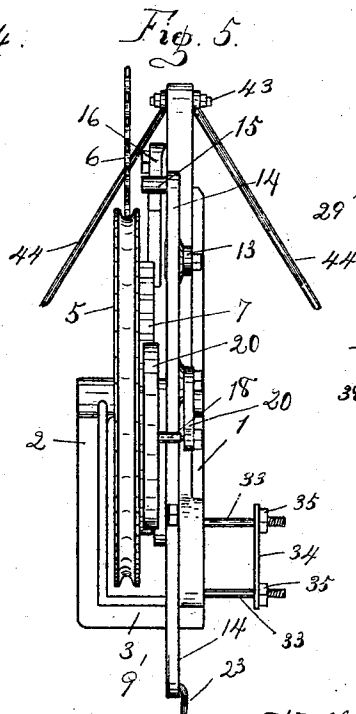


Fig. 5.

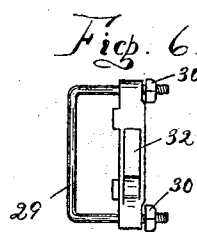


Fig. 6.

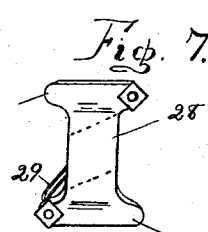


Fig. 7.

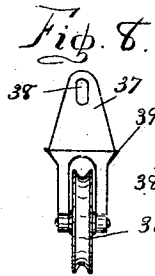


Fig. 8.

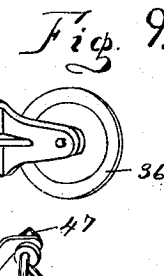


Fig. 9.



Fig. 10.

WITNESSES:

Adelaide Kearns.

Ada Crawford.

William W. Chaney INVENTOR

BY Chapin & Denny

HIS ATTORNEYS.

UNITED STATES PATENT OFFICE.

WILLIAM W. CHANEY, OF FORT WAYNE, INDIANA.

WIND-WHEEL REGULATOR.

SPECIFICATION forming part of Letters Patent No. 636,952, dated November 14, 1899.

Application filed May 12, 1899. Serial No. 716,476. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM W. CHANEY, a citizen of the United States, residing at Fort Wayne, in the county of Allen, in the State of Indiana, have invented certain new and useful Improvements in Windmill-Regulators; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to improvements in windmill-regulators.

The object of my invention is to provide an automatic windmill-regulator of simple and economical construction and compact in form adapted to be governed in its operation by the stage of water in the tank supplied by the mill, my improvement being adapted to automatically throw or adjust the mill into the wind when the water in the tank is lowered to a certain predetermined limit and to throw it out of the wind when the water in said tank rises to a certain determined limit.

Another prime object of my invention is to provide a regulator adapted to be operated with equal facility upon either a high or low tank so constructed as to present a compact form, requiring but a small amount of room upon the derrick and having a novel means of making connection with the pump-rod without boring the same.

In the accompanying drawings, in which similar reference-numerals indicate like parts throughout the several views, Figure 1 is a side elevation of my improvement pivotally connected to the pump-rod, showing the position of my regulator when the wheel is out of the wind and the pump is inoperative and also showing the general arrangement of the operative parts and the manner of connecting it to the pump-rod. Fig. 2 is a similar view of the same when the windmill is in operative position. Fig. 3 is a perspective of my improvement in position upon a steel tower or derrick, showing the manner of securing the same. Fig. 4 is a side view of Fig. 1, and Fig. 5 is a side view of Fig. 2 looking from the left and also shows a modified arrangement of stay-rods therefor. Figs. 6 and 7

are detail side views of my improved pivotal connection with the pump-rod. Figs. 8 and 9 are detail views of two different forms of pulleys for the float cord or cable. Fig. 10 is a detail perspective of my improved clamping device for securing the outer ends of the said stay-rods to the tower-posts without boring the same.

At any suitable point on the windmill-tower, preferably upon one of the horizontal tower-braces 25, whose opposite ends are secured to the uprights 24 at the point of meeting of the adjacent ends of the oblique braces 26, and approximately midway its ends is secured a proper supporting-piece 27, upon which my improved regulator is rigidly clamped.

The body of my invention consists of an upright supporting-bracket 1, having a companion upright piece 2 in parallel relation therewith and adapted to aid in supporting the operative mechanism. These parts 2 and 3 are rigidly connected at their lower ends by the integral cross-piece 3, Figs. 4 and 5. The lower end of bracket 1 has a thickened and widened portion 31, in which are loosely arranged two pairs of bolts 33, whose outer ends are provided with the loosely-mounted upright plates 34, adapted to clamp the said supporting-piece 27 by tightening the nuts 35 on the free ends of said bolts.

At suitable opposite openings in the bracket 1 and the piece 2 is rigidly fixed the horizontal shaft 4, on which is revolvably mounted a wheel 5, having a grooved perimeter, in which is secured and arranged the lower end of a proper chain, cable, or cord 6, whose upper end is so connected to the tail-vane or other mechanism of the mill in a well-understood manner that sufficient downward strain or stress upon said chain or cable will throw the windmill out of the wind and stop its operation in a well-understood manner. Upon one side or face of this wheel 5 is fixed or preferably made integral therewith a ratchet-disk 7, having a section 8 devoid of ratchet-teeth, Fig. 2, for the purpose hereinafter described. Upon the said shaft 4, adjacent to the outer face of said ratchet-disk, is pivotally mounted one end of the lever 9, the other end of which is loosely mounted in a clamping device 28, constructed and arranged as follows: The

body of the clamp consists of a casting having opposite lateral lugs upon its extremities and provided with a diagonally-arranged rod 29, whose ends are bent to a right angle with the main portion thereof and have their extremities screw-threaded and loosely mounted in suitable perforations in the corresponding lateral lugs of said casting and are secured in position by proper nuts 30, Fig. 6. This rod 29 embraces the pump-rod 12, diagonally and tightly clamped thereon by a proper adjustment of the said nuts 30. This casting has an oblique slot 32, adapted to loosely contain the free end of the said lever 9. The said bracket 1 has an integral lateral arm 13, at or near the outer end of which is pivotally mounted a lever-arm 14, having upon the inner face of its upper extended end a rigid lateral pin or lug 15, Fig. 5, adapted to release the holding-pawl 16 from its engagement with the said disk 7. This pawl 16 is pivoted on the upper end and inner face of the bracket 1, has one end adapted to normally form a holding engagement with the teeth of said disk, and has its other extended end adapted to form an actuating engagement with the said pin or lug 15. To the lower end of the said lever 14 is secured a proper chain or wire, cord, or cable 23, (shown in part,) which passes over a proper pulley or pulleys 36 on the said tower and has its lower end secured to a suitable float resting on the water in a proper tank in any desired arrangement. This cord, wire, or cable 23 may extend downward directly to the tank float or may first extend to a second pulley at or near the top of the tower and then downward to the tank, as shown in part in Fig. 3, thereby accommodating my improvement to either a low or an elevated tank. The pulleys 36 may be provided with different forms of hangers 37, as shown in Figs. 8 and 9, the former for a vertical position and the latter for a horizontal position. They are each provided with a bolt-hole 38 and a transverse flange 39, against which the brace abuts and to which it is secured, thereby securing it against lateral displacement. At a suitable point in the outer face of the said lever 14 is arranged a fixed lateral pin 40, on which is loosely pivoted the inner end of a short lever-arm 19, whose outer slotted end is pivoted to a second pawl 20, whose lower end is pivoted to the said lever 9 and whose upper end is adapted to form an actuating engagement with the ratchet-disk 7 in the manner herein-after described. A staple 41 is connected to a lug 42 on the outer face of the said bracket 1 by a coiled retracting-spring 21, whereby the said pawl 20 is normally held in its engagement with the said disk. A bolt 43 passes through the top of the said bracket 1, on the opposite ends of which are mounted the apertured end of the stay-rods 44 and are secured in position by proper nuts on the ends of said bolt. These stay-rods may be secured to the tower posts or uprights either above or below the support 27 as follows: A triangular metal

strap 45, Fig. 10, has a bolt 46 loosely mounted in suitable perforations in the ends thereof. The outer ends of the said stay-rods are secured to this bolt 46. The metal strap is then placed in position at any desired point on said tower-posts, embracing the same, and is firmly secured in position by tightening the nut 47 on one end thereof.

The operation of my invention thus described is substantially as follows: As the cord, chain, or cable 6 has its lower end secured to a suitable point on the perimeter of the wheel 5 and has its upper end secured to the tail-vane of the wind-wheel (not shown) and is tightly wound partially around the perimeter of the wheel 5, as shown in Figs. 1 and 4, it is evident that the wind-wheel will be securely held out of the wind so long as the wheel 5 is locked by the holding-pawls, as described, Fig. 1. As the water in the tank is lowered the lower end of the lever 14 is gradually withdrawn from its normal position, Fig. 1, against the tension of the spring 21, thereby disengaging the pawls 16 and 20 from their engagement with the ratchet-disk 7 until the said pawls assume the position shown in Fig. 2. Obviously when the said pawls are thus disengaged the wheel 5 is free to return to its normal position, Fig. 2, under the stress of the cord or chain 6, thus permitting the wind-wheel to swing into the wind for the operation of pumping. When the tank is properly filled, the float therein is correspondingly elevated, thereby permitting the lever 14 to resume its normal position under the tension of the said spring 21, with said pawls in engagement with the said ratchet-disk. As the pumping continues the wheel 5 will be rotated to the right by the actuating engagement of the pawl 20, thereby winding the chain 6 thereon, as shown in Fig. 2, until the said pawl 20 reaches the said blank space 8, whereupon it can wind the said chain no farther, and the wind-wheel will be securely held out of the wind until the fall of the said float in the tank again disengages the said pawls, after which the wind-wheel will be free to swing into the wind, as before.

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

1. The combination in a windmill-regulator of the bracket 1, carrying the operative mechanism; a pulley-wheel 5 having a grooved perimeter; a flexible connection uniting said wheel with the working parts of the mill; a ratchet-disk in fixed relation to said wheel; a pivoted lever whose outer end is in cooperative relation with the pump-rod; a float-lever pivotally mounted on said bracket and having its lower end operatively connected to a proper tank float; a pawl or dog adapted for a normal holding engagement with said disk, and pivotally connected with both of said levers; and a second dog normally in a holding engagement with said disk, all substantially as described.

2. A supporting-bracket formed of two

pieces rigidly connected at their lower ends, the wheel 5 mounted upon the horizontal shaft 4 journaled in the bracket, and having a grooved edge, the chain, cable, or cord 6 having one end connected to the wheel, and the other to the tail-vane of the windmill, a ratchet-disk 7 secured to the side of the wheel and having a section 8 devoid of ratchet-teeth, the lever 9 having one end connected to the shaft 4, and the other clamped to the pump-rod, the lever-arm 14 mounted upon the lateral arm 13 upon the bracket, and which lever-arm is provided with a pin 15 at its upper end, and a pawl 16 upon the bracket engaging with the ratchet-wheel 7 when operated by the pin 15, upon the lever-arm 14, combined with

the pawl 20 pivoted upon the lever 9, the slotted arm 19 extending from the arm 14, the spring 21 connecting the lever-arm 14 and the bracket, and a cord, wire or chain 23, connected at the lower end of the lever, and which is connected to the tank-float, the parts being combined and arranged to operate, substantially as shown and described.

Signed by me at Fort Wayne, Allen county, State of Indiana, this 6th day of May, A. D. 1899.

WILLIAM W. CHANEY.

Witnesses:

ADELAIDE KEARNS,
ADA CRAWFORD.