

No. 661,455.

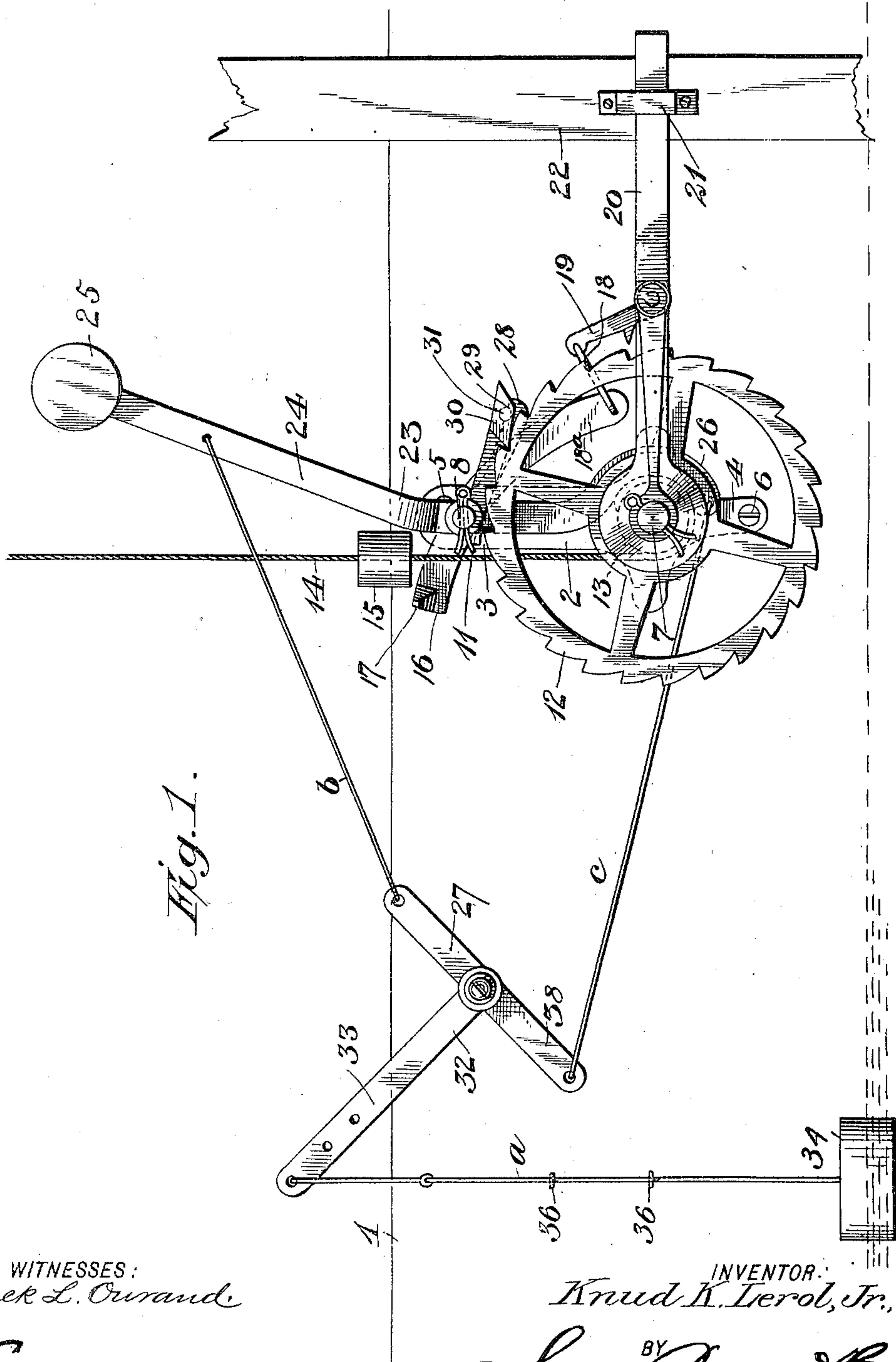
Patented Nov. 6, 1900.

**K. K. LEROL, JR.**  
**REGULATOR FOR WINDMILLS.**

(Application filed May 21, 1900.)

(No Model.)

**2 Sheets—Sheet 1.**



WITNESSES:

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 Frank L. Orvand.

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**INVENTOR.**

INVENTOR:  
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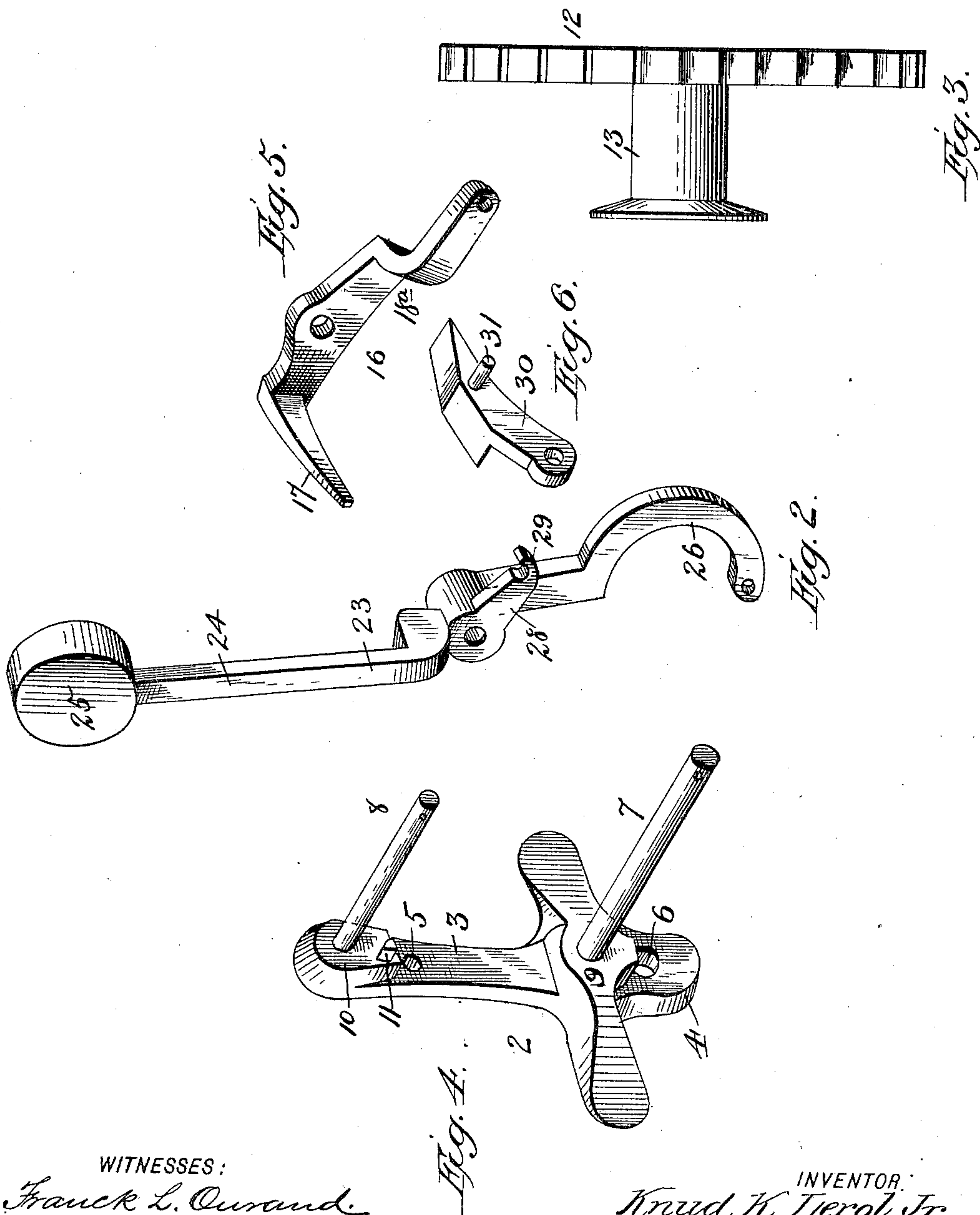
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WITNESSES:  
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# UNITED STATES PATENT OFFICE.

KNUD K. LEROL, JR., OF NEWBURG, MINNESOTA.

## REGULATOR FOR WINDMILLS.

SPECIFICATION forming part of Letters Patent No. 661,455, dated November 6, 1900.

Application filed May 21, 1900. Serial No. 17,431. (No model.)

*To all whom it may concern:*

Be it known that I, KNUD K. LEROL, Jr., a citizen of the United States, residing at Newburg, in the county of Fillmore and State of Minnesota, have invented new and useful Improvements in Regulators for Windmills, of which the following is a specification.

My invention relates to regulators for windmills; and one object of the same is to provide means whereby the windmill is automatically started when the water is low in the tank or reservoir and stopped when sufficient water has been pumped into said tank.

Another object is to provide simple and efficient means to accomplish the result referred to in a positive and reliable manner.

I attain the objects and advantages referred to by means of the construction shown in the accompanying drawings, which form a part of this specification, and in which—

Figure 1 is a side view of a windmill-regulator made in accordance with my invention. Fig. 2 is a detail perspective view of the brake-lever. Fig. 3 is a side view of the ratchet-wheel. Fig. 4 is a perspective view of the support. Fig. 5 is a similar view of the tripping-dog. Fig. 6 is a perspective view of the weighted pawl.

Like numerals designate like parts wherever they occur in the different views in the drawings.

In the said drawings, 1 is the reservoir or tank for containing water to be filled by the windmill-pump. Secured to the inner surface of one of the walls of said tank is a support 2, consisting of the arms 3 4, having perforations 5 6 for the attaching-screws, and the studs or pins 7 8, projecting upward from the bosses 9 10. Near the pin 8 is a stop 11, which will be hereinafter referred to. Journalled on the pin 7 is a ratchet-wheel 12, having a drum 13 formed therewith. A rope or cable 14 is attached to the ratchet-wheel, said rope extending up to the wire connected to the windmill. A weight 15 is connected to the rope at the required point to come in contact with a tripping-dog 16, pivoted on the pin 8, when the rope or cable is wound on the drum. The tripping-dog 16 has a projecting point 17, which forms a stop or guide for the rope 14, and the opposite end of said dog has a curved arm 18<sup>a</sup>, connected by a

link 18 to a pawl 19, pivoted to the pump-rod lever 20. The lever 20 is journaled at its inner end to the pin 7 and is superposed above the ratchet-wheel 12. The outer end of the lever 20 is secured by a keeper 21 to the pump-rod 22.

The brake-lever 23 is pivoted intermediate its ends upon the pin 8. This lever is comprised of an arm 24, having a weighted end 25 and a curved spanner-like brake member 26, which partially surrounds the drum 13. Projecting outward from the hub 27 of said lever is an arm 28, having a hook 29 formed at its outer end. Pivoted upon the pin 8 and superposed above the arm 28 is a weighted pawl 30, which is designed to engage the teeth of the ratchet-wheel 12. Upon the under surface of the pawl 30 a pin 31 is formed, said pin being seated in the hook 29 of the arm 28.

The three-armed lever 32 is pivoted to the wall of the tank, and to the outer end of the arm 33 of said lever a rod or wire *a* is connected, which extends down into the tank and has a float 34 attached thereto. The arm 33 may be provided with a number of perforations to serve as a means for adjustment of the rod or wire *a*, and said rod or wire may be guided in its movements by staples 36, straddling the rod and secured to the wall of the tank. To the outer end of arm 27 of the lever 32 a wire *b* is attached, said wire extending to the arm 24 of the brake-lever 23, where it is attached. A wire *c* is connected to the outer end of arm 38 of lever 32, and the opposite end of said wire is attached to the end of the brake member 26.

The operation of my regulator is as follows: When the water is low in the tank 1 and has reached the lower limit, the float pulls downward upon the rod or wire *a* and depresses the arm 33 of the lever 32. This action pulls upon the wire *b* and pushes the wire *c*, the result being that the pin 31 is carried outward from the ratchet-wheel by the arm 28, thus causing the dog 30 to disengage the ratchet-wheel. The brake mechanism 26 is also moved outward from the periphery of the drum 13 and prevents pawl 19 from engaging with the ratchet-wheel. The rope 14 is now at the limit of its upward movement and is unwound from the drum. The upper end



of the rope is connected to the shifting mechanism or clutch of the windmill and is now in gear. When water rises in the tank, the float will rise, and wire *a* being connected  
5 with lever 32 will cause the same to pull on wire *c* and push on wire *b*, the result being that arm 28 is carried downward, allowing dog 30 to engage with the ratchet-wheel, and arm 18<sup>a</sup> is permitted to go toward the drum  
10 and pawl 19 to engage with the ratchet-wheel. In this condition the pawl 19 is actuated at every reciprocation of the pump-rod to move the ratchet-wheel the distance of the two teeth. The retrograde movement of the  
15 ratchet-wheel is prevented by the weighted pawl 30. When the rope 14 has been wound upon the drum 13 until the weight 15 comes in contact with the tripping-dog 16, the pawl 19 is disengaged from the ratchet-teeth by  
20 the arm 18<sup>a</sup>, which moves the link 18 and the pawl 19, the stop 11 limiting the movement of said pawl. The windmill is now out of gear.

Having thus fully described my invention,  
25 what I claim is—

1. In an automatic regulator for windmills, a ratchet-wheel journaled to a support, a wind-

ing-drum on said ratchet-wheel, a rope attached to said wheel and carrying a weight, a two-armed lever pivoted on said support, 30 one arm of said lever spanning the drum, connections from said arms to a lever operated by the float, and an arm carrying a pawl, said arm attached to the pump-rod, substantially as described. 35

2. In a regulator for windmills, a ratchet-wheel journaled to a support, and provided with a drum, a rope connected to the shifting mechanism of the windmill and carrying a weight, an arm pivoted to the support and 40 connected to the pump-rod, a pawl on said arm adapted to engage the ratchet-wheel, and connections whereby the rope is wound upon and unwound from the drum to throw the pump into and out of operation depending 45 upon the height of water in the water-tank, substantially as described.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

KNUD K. LEROL, JR.

Witnesses:

P. P. JOHNSON,  
G. GABRIELSON.