

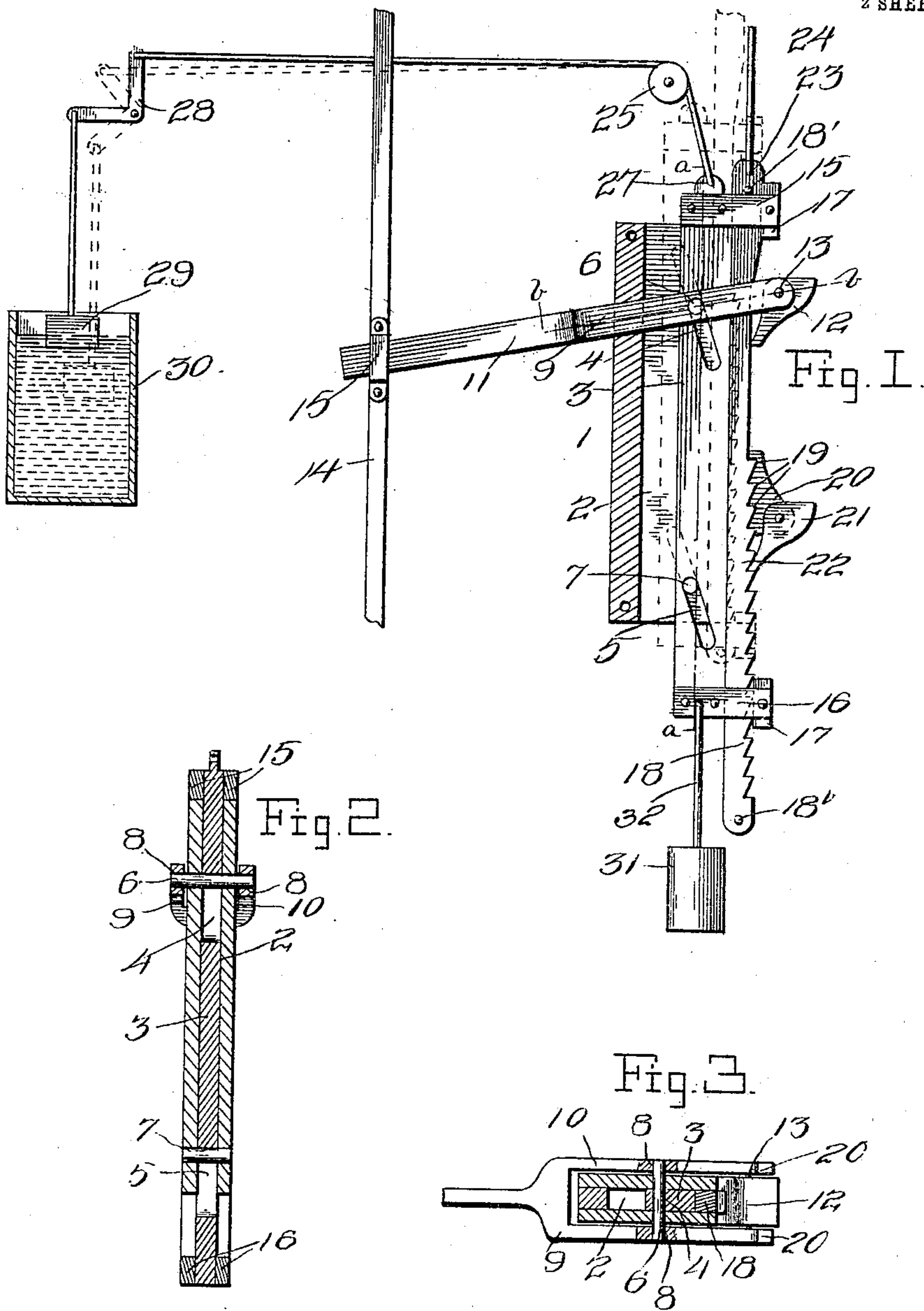
No. 816,167.

PATENTED MAR. 27, 1906.

F. E. KRONQUEST.
WINDMILL REGULATOR.

APPLICATION FILED MAY 10, 1905.

2 SHEETS—SHEET 1.



Witnesses
C. K. Reichenbach.
E. M. Wolford

Inventor.
F. E. Kronquest.
By *[Signature]*
Attorneys

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2 SHEETS—SHEET 2.

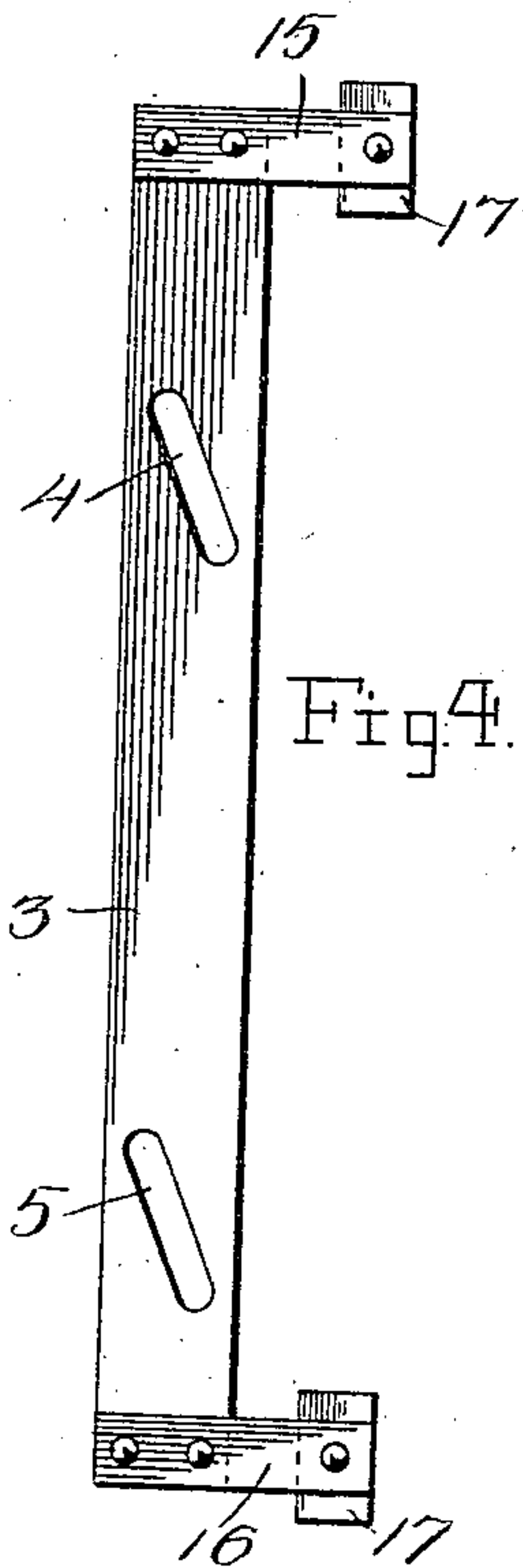


Fig. 4.

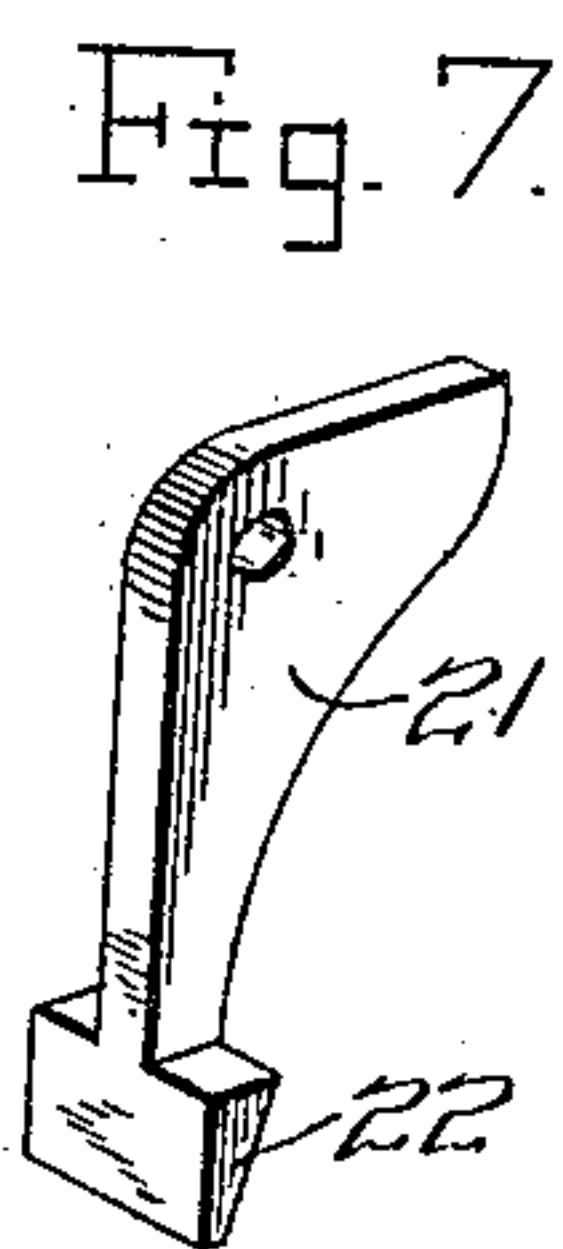


Fig. 7.

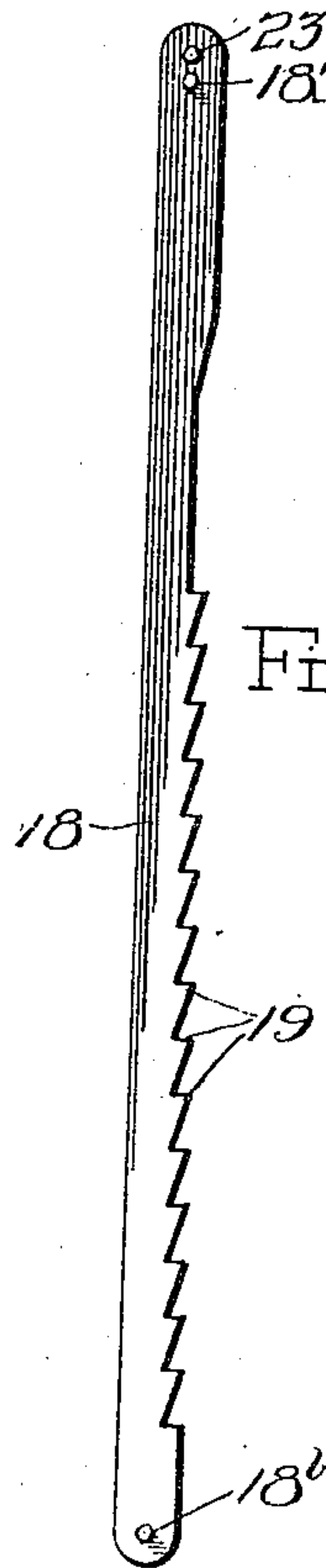


Fig. 5.

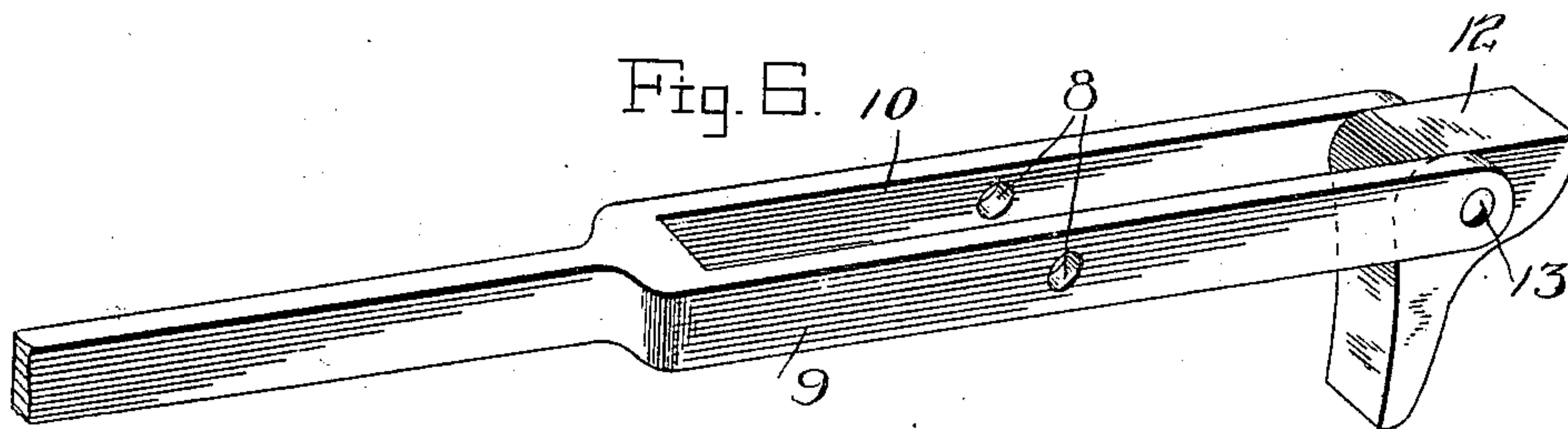


Fig. 6.

Witnesses
C. H. Reichenbach.
E. M. Delford.

Inventor
F. E. Kronquest
By *Charles H. Delford*
Attorneys

UNITED STATES PATENT OFFICE.

FRANCE E. KRONQUEST, OF LOOMIS, NEBRASKA.

WINDMILL-REGULATOR.

No. 816,167.

Specification of Letters Patent.

Patented March 27, 1906.

Application filed May 10, 1905. Serial No. 259,743.

To all whom it may concern:

Be it known that I, FRANCE E. KRONQUEST, a citizen of the United States, residing at Loomis, in the county of Phelps, State of Nebraska, have invented certain new and useful Improvements in Windmill-Regulators; and I do hereby 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.

This invention relates to windmill-regulators.

One object of this invention is to provide a comparatively inexpensive, durable, and positively efficient and reliable regulator for operating the windmill and pump according to the water-level of the tank.

Another object resides in the provision of a simple and strong arrangement of cooperating elements capable of being easily and quickly associated with any windmill and tank.

With these and other objects in view the present invention consists in combination and arrangement of parts, as will be hereinafter more fully described, shown in the accompanying drawings, and particularly pointed out in the appended claims, it being understood that changes in the form, proportion, size, and minor details may be made within the scope of the claims without departing from the spirit or sacrificing any of the advantages of the present invention.

In the drawings, Figure 1 is a side elevation, partly in section, the windmill being not shown and the dotted lines indicating the positions assumed by the different elements when the slide and rack bars are moved upwardly. Fig. 2 is a vertical sectional view on the line *a a* of Fig. 1. Fig. 3 is a transverse sectional view on the line *b b* of Fig. 1. Fig. 4 is an elevation of the slide-bar. Fig. 5 is an elevation of the rack-bar. Fig. 6 is a detail perspective view of the pump-operating lever including the dog or pawl. Fig. 7 is a detail perspective view of the lowermost pawl.

Referring now more particularly to the accompanying drawings, the reference character 1 designates a frame which is secured fixedly in any suitable manner to the tower (not shown) and provided longitudinally throughout its length with a slot forming a guideway 2 for a purpose presently explained, the said slot or guideway opening out of both ends

and the front of the frame, as clearly shown in the drawings.

A slide-bar 3 of greater length than the frame is mounted within the latter, the slide-bar having upper and lower slots 4 and 5, respectively, which incline upwardly with respect thereto, passing through each of which are bolts or other suitable elements 6 and 7, respectively, the bolts or the like 6 and 7 being passed through the frame 1 from side to side and the upper one (designated by the numeral 6) being of greater length than the lower one and projecting upon opposite sides of the frame, the projecting ends receiving the aligning perforations 8 of the arms 9 and 10 of the pump-rod lever 11. It will be seen that the upper ends of the said inclined slots rest upon said bolts or the like 6 and 7 and that the rear edge of the slide-block is normally out of contact with the back of the frame 1.

The arms 9 and 10 of the pump-rod lever 11 embrace the upper end of the frame 1 and project beyond the front edge of the latter, the forward or free ends of the said arms receiving a dog or pawl 12, which is pivoted therein by means of a suitable pivot-pin 13. It will be understood that the pump-rod lever 11 is made, preferably, of a single piece of material with its forward end bifurcated to form the said arms 9 and 10. The rear end of the lever 11 is connected to the pump-rod 14 by means of a suitable clamping element 15 and pivotally associated with the frame upon the projecting ends of the pin or other element 6.

Fitted in any suitable manner to the upper and lower ends of the slide-bar 3 between the respective upper and lower inclined slots 4 and 5 and the extremities of the slide-bar are pairs of arms 15 and 16, which project beyond the front edge of the frame 1 and have their free ends closed by means of the blocks 17, arranged transversely thereof and above and below their corresponding upper and lower edges.

Arranged to slide in the guideway 2 between the front edge of the slide-bar 3 and the front edge of the frame 1 is a rack-bar 18, having its teeth 19 arranged in its forward face and directed upwardly, as shown. This rack-bar slides vertically of the frame and passes through the upper and lower arms 15 and 16, the rack-bar being limited in its sliding movement in either direction by means of the upper and lower pins 18' and 18^b, respectively.

Secured in any suitable manner to the front edges of the frame are perforated ears 20, which receive a dog or pawl 21, constructed and arranged for the engagement of its lower broadened knife end 22 with the teeth 19 of the rack-bar 18, the upper end of the latter having a perforation 23 therein for the reception of a cable 24, leading to the windmill above, which latter is not shown in the drawings. It is obvious that the cable 24 may be secured to the upper end of the rack-bar in any other suitable manner.

Mounted within or upon the tower (not shown) in any suitable manner is a pulley-wheel 25, running over which is a cable having one end connected to the upper end of the slide-bar 3, as at 27, with its opposite end connected to an arm of the angle-lever 28, pivoted in any suitable manner to the tower, there being a float 29, having connection with the opposite arm of the said angle-lever. It will be understood that the float 29 rises and falls in the tank 30, according to the level of the water in the latter.

When the water in the tank 30 is at the proper level, the slide and rack bars are held at their extreme lower movements by means of the dog or pawl 21 and the weight 31, the latter being secured to the lower end of the slide-bar 3 by means of a suitable connection 32. However, when the level of the water in the tank 30 begins to fall the float 29 falls too and in falling with the water prompts the angle-iron 28 to turn upon its pivot, pulling the cable 26 over the pulley 25, consequently causing the slide-bar 3 to be raised vertically in its guideway in the frame 1, the rack-bar 18 by reason of its cable connection 24 with the windmill being drawn upwardly with the slide-bar.

It will be noted that the teeth 19 of the rack-bar 18 project beyond the front edge of the frame 1 when in its extreme lower position, so that the dog or pawl 21 will engage therewith to permit back or upward movement. However, since the slide-bar lies normally out of contact with the back of the guideway 2 of the frame and is carried laterally into engagement with the latter when raised by reason of the inclined slots 4 and 5 riding upon the pins 6 and 7 the rack-bar 18 being in contact with the front edge of the slide-bar is also carried laterally with the latter, carrying the toothed edge of the rack-bar within the frame, and consequently out of alinement with the aforesaid pawls. Now when the tank is being filled with water through the reciprocation of the pump-rod the float 29 rises according to the level of the water, causing the slide-bar to fall, and with it the rack-bar, the latter before it has reached its lowermost limit presenting its teeth to the

dogs or pawls 12 and 21, the latter serving to prevent back movement of the rack-bar and the former, being pivoted to the pump-rod lever, assisting in driving the rack and slide bars downwardly.

It will be observed that the teeth 19 are discontinued at the upper end of the rack-bar and that when the latter has nearly reached its lowermost movement the dog 12 of the pump-rod lever does not act upon the teeth 19.

The weight hereinbefore referred to may not be used, only in certain cases, for the slide-bar 3 is of sufficient weight to drop of its own accord under usual conditions.

What is claimed is—

1. In a windmill-regulator, a pump-rod, a frame mounted adjacent the pump-rod, a pump-rod lever pivoted to the frame and carrying a dog at one end and connected at its opposite end to the pump-rod, a slide-bar having diagonal slots formed therein, said bar being slidably associated with the frame, pins carried by the frame and engaged in the slots formed in the bar, the aforesaid dog on the pump-rod lever being adapted to contact with the rack-bar, another dog carried by the frame for contact with the rack-bar, a tank having a float therein, connection between the rack-bar and the windmill, connections between the float and the slide-bar, and a weight carried by the slide-bar.

2. In a windmill-regulator, a pump-rod, a frame mounted adjacent the pump-rod and having a guideway therein, upper and lower pins passed through the sides of the frame and said guideway, a slide-bar mounted within said guideway upon said pins for vertical and lateral movement, the aforesaid upper pin projecting upon opposite sides of the frame, a pump-rod lever pivotally mounted upon the projecting ends of said upper pin and carrying a pivoted dog at one end with its opposite end connected to the pump-rod, said slide-bar having upper and lower pairs of arms projecting beyond the front edge of the said frame, a rack-bar arranged to slide within the guideway of the frame and between said upper and lower pairs of arms, a dog pivotally mounted upon the frame for engagement with said rack-bar, means for limiting the upward and downward movement of the rack-bar, a tank having a float therein, connections between the float and the slide-bar, a connection between the rack-bar and the windmill, and a weight at the lower end of the slide-bar.

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

FRANCE E. KRONQUEST.

Witnesses:

F. W. KIPLINGER,
U. W. SVERTZER