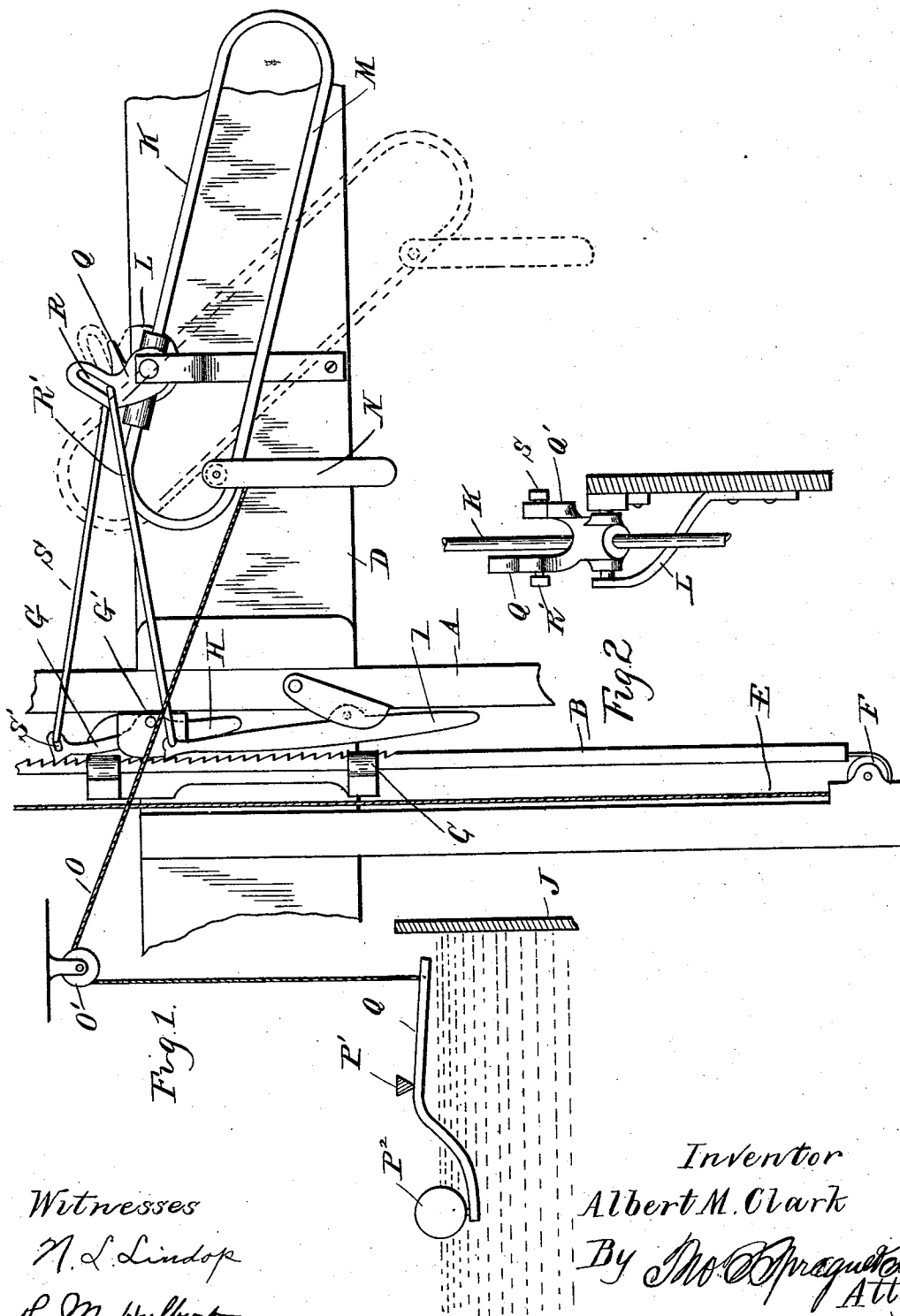


(No Model.)

A. M. CLARK.
ATTACHMENT FOR WINDMILLS.

No. 475,009.

Patented May 17, 1892.



UNITED STATES PATENT OFFICE.

ALBERT M. CLARK, OF ANN ARBOR, MICHIGAN.

ATTACHMENT FOR WINDMILLS.

SPECIFICATION forming part of Letters Patent No. 475,009, dated May 17, 1892.

Application filed October 10, 1891. Serial No. 408,383. (No model.)

To all whom it may concern:

Be it known that I, ALBERT M. CLARK, a citizen of the United States, residing at Ann Arbor, in the county of Washtenaw and State of Michigan, have invented certain new and useful Improvements in Attachment for Windmills, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention relates to new and useful improvements in windmill attachments of that class which are used to automatically throw the mill in or out of the wind, the device being operated by the pump-rod and controlled
15 by a float or similar device.

The invention consists in the peculiar construction of the ratchet-and-pawl mechanism operated by the pump-rod and controlled by a pivoted frame, which in turn is controlled by
20 the float acting upon a weight which rides on an inclined rail upon said frame.

The invention further consists in the peculiar construction, arrangement, and combination of the various parts, all as more fully
25 hereinafter described.

In the drawings I have shown in Figure 1 an elevation of my improved device as applied to a windmill, and in Fig. 2 a detached
30 end elevation of the pivoted frame at right angles to Fig. 1.

A is the pump-rod of a windmill of any known or usual construction, such rod being vertically reciprocated by the rotation of the mill.

35 B is a ratchet-bar slidingly secured in guide-bearings C, which are secured upon a suitable frame-work D beside the pump-rod. This ratchet-bar at its lower end is connected to a rope or chain E, which passes beneath a sheave F and up to the mill, being connected thereto
40 in any suitable manner, so that a downward pull upon the rope will throw the mill out of the wind, and upon releasing it it will move again into the wind.

45 G is a pawl pivoted upon the pin G', secured to the frame D and adapted to hold the ratchet-bar B in its adjusted position. This pawl is preferably so constructed as to be normally held in engagement with the ratchet-bar by gravity or by means of a spring, as
50 desired. I have shown the pivotal point located at one side the center of gravity with

a counterbalance-arm H at the lower end to hold the pawl into engagement with the ratchet-bar by gravity.

I is a pawl pivotally secured at one side of the pump-rod, adapted to engage (under certain conditions) with the ratchet-bar B. This pawl I also preferably counterweight, so that it will normally fall into engagement with the ratchet-bar when it is free to move. It is evident that if both pawls were in engagement with the ratchet-bar and the pump-rod A were reciprocated in the usual manner the pawl I would lift the ratchet-bar, and the pawl G would hold it in its raised position. At each stroke of the mill the lifting of the ratchet-bar would draw upon the cord E and pull the mill out of the wind. In order to allow the mill to again operate, the pawls G and I must be released, and to accomplish this and also to automatically re-engage them when the mill has completed its work--such as, for instance, filling the tank J—I employ the following mechanism: K is a frame pivoted upon the bracket L, preferably at one side of the center of said frame, so that the rail M on the frame will normally have an inclined position. Upon this rail a weight N is adapted to move, a roller preferably being employed upon which the weight can move up or down the inclined rail. This weight is connected by means of a rope or chain O, which passes over a sheave O', with a lever P located in the tank J, fulcrumed upon a pivot P', and carrying at its opposite end a float P². Q and Q' are ears on the frame K, extending above its pivotal point. The ear Q is provided with a slotted bearing R, with which one end of a connecting-rod R' is adapted to engage. The other end thereof engaging with the end of the pawl I, the slotted bearing R allows of the limited movement necessary in the rod R', due to its vertical reciprocation with the pump-rod. The ear Q' has secured to it one end of the connecting-rod S, which at its other end connects with the pawl G, preferably in the slotted bearing S', which slotted bearing is employed to allow the pawl to ride over the teeth of the ratchet-bar without affecting the connecting-rod S. The parts being thus constructed, the mill being thrown out of the wind in the manner previously described, and the parts being in the position shown in Fig.

1, as the water in the tank J lowers the float P² will likewise lower, and the opposite end of the lever P will rise, allowing the weight N to run down the inclined rail M. As the weight traverses this rail, it gradually rocks the frame K upon its pivot, moving rearwardly the ears Q and Q', and finally withdrawing through the connecting-rods S' R' the two pawls G and I, allowing the ratchet-bar to fall, and through the medium of the cord E permitting the return of the mill into the wind. As the mill continues its pumping, raising the water in the tank J, the float is again raised, the weight N will be drawn up the rail M, the frame K will be rocked to its initial position, (shown in Fig. 1,) moving the two pawls G and I into engagement with the ratchet-bar, and the mill will be again thrown out in the manner described.

20 What I claim as my invention is—

1. In a windmill-regulator, the combination of the throwing-out cord, a movable ratchet-bar connected thereto, the pump-rod, a pawl on the pump-rod and a pawl pivoted to a fixed part of the frame, both pawls adapted to engage with said ratchet-bar, a pivoted frame having connections with both of said pawls, an inclined rail on said frame, and a weight movable thereon, controlled by the float or similar device, substantially as described.

2. In a windmill-regulator, the combination, with the pump-rod, of the ratchet-bar beside

the rod, a pawl on the pump-rod adapted to engage the ratchet-bar, a pawl pivoted to a fixed portion of the frame and adapted to engage said bar, a pivoted frame, rods connecting both pawls with said frame, slotted bearings for the connecting-rods, an inclined rail on the frame, a weight movable on said rail, and a float or similar device for moving said weight to rock the frame, substantially as described.

3. In a windmill-regulator, the combination, with the pump-rod and throwing-out cord, of a ratchet-bar on the throwing-out cord, a stationary pawl on the mill-frame engaging with the ratchet-bar, a pawl on the pump-rod engaging with the ratchet-bar, a link-shaped frame K, a rail M, formed at the lower end thereof, a bracket on the mill-frame L, upon which said frame is pivoted, the arms Q and Q' on the frame K, the rods S and R', connecting the arms Q' and Q with the stationary and movable pawls, respectively, a weight N, sliding on the rail M, a tank having a float therein, and a suitable connection between the weight and a float in the tank, substantially as described.

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

ALBERT M. CLARK.

Witnesses:

M. B. O'DOHERTY,
JAMES WHITTEMORE.