

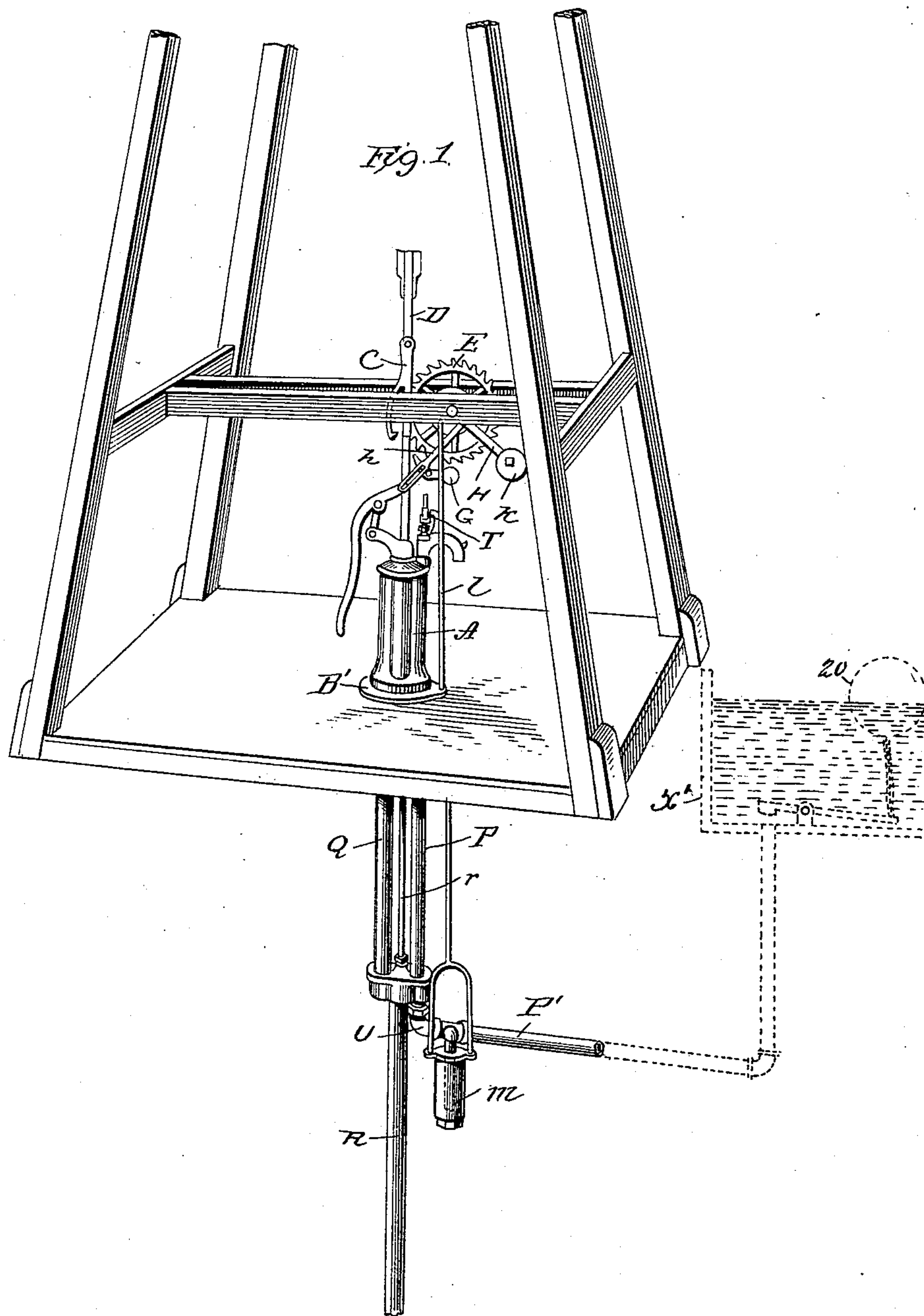
(No Model.)

2 Sheets—Sheet 1.

P. A. MYERS.  
REGULATOR FOR WINDMILL PUMPS.

No. 448,985.

Patented Mar. 24, 1891.



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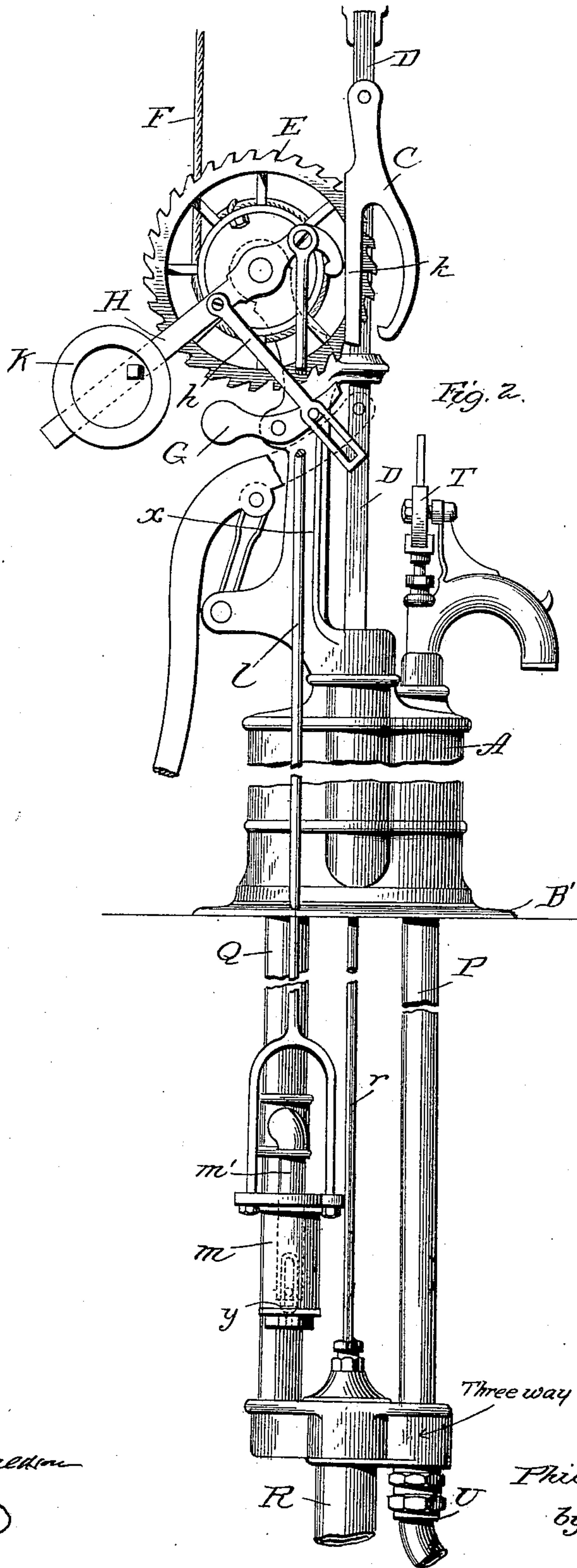
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# UNITED STATES PATENT OFFICE.

PHILIP A. MYERS, OF ASHLAND, OHIO.

## REGULATOR FOR WINDMILL-PUMPS.

SPECIFICATION forming part of Letters Patent No. 448,985, dated March 24, 1891.

Application filed May 27, 1890. Serial No. 353,298. (No model.)

*To all whom it may concern:*

Be it known that I, PHILIP A. MYERS, of Ashland, in the county of Ashland and State of Ohio, have invented a new and useful  
5 Improvement in Regulators for Windmill-Pumps; and I do hereby declare that the following is a full, clear, and exact description of the same.

My said invention relates more particularly  
10 to regulators for windmill-pumps of that class in which, when the tank is full, the force of the pump on the water reacts to cause the pumping of the water to cease, resumption of the operation of the pump being again per-  
15 mitted when the water in the tank has been lowered. Heretofore regulators for windmill-pumps have been devised in which the reaction of the water under pressure of the working of the pump is used to throw the  
20 wind-wheel out of work.

The main object of my invention is to relieve the pump of this work and to perform it more directly and certainly by the pump-rod, requiring only of the water pressure under the  
25 action of the pump the work of making the necessary connections in order that force of the wind-wheel may be utilized directly to turn itself out of the wind or cause it to cease to work.

30 My invention includes the principle of operation indicated above, and details of construction in connection therewith. It is illustrated in the accompanying drawings, in which—

35 Figure 1 shows a side elevation of the machine or attachment in connection with the pump and tower and supported by the tower. Fig. 2 is an enlarged side elevation of the apparatus in which the main feature of my in-  
40 vention is involved, the attachment here being supported from the pump-stock.

In the drawings, A represents the pump-stock, and B' its foot or collar, which rests upon the platform. The main discharge-pipe  
45 is shown at P, and the air-pressure pipe at Q. The force-cylinder is at R, and the union which connects the main discharge-pipe with the tank is shown at U. These parts are of ordinary construction, as are also the handle  
50 and piston-rod r. The tank is indicated in dotted lines at X', Fig. 1, located at any suitable point and connected with the pump by

pipe P'. The tank has also the ordinary valve operated by the float 20 in the well-known manner. A three-way cock is located  
55 at the point above the coupling U, (indicated in Fig. 2,) and this is operated by a lever T; but as these features are of any ordinary form they need not be particularly shown or described.

The leading feature of my invention, as  
60 above indicated, lies in mechanism whereby the cord, chain, or its equivalent, which pulls the wind-wheel out of the wind, is operated by the actuating-rod of the wind-wheel itself. 65  
The especial mechanism interposed between the actuating-rod and the said cord or chain is shown more clearly in Fig. 2. In this is also shown another element, that of a mech-  
70 anism operated by the pressure of the water to disengage the actuating-rod from the mechanism which works the cord or chain arranged to pull directly on the wheel and turn it out of the wind. The essential features of this con-  
75 struction are therefore, first, a detachable connection between the cord and the actuating-rod, and, second, mechanism for operating this connection through the reaction of the water under pressure. The especial mechanism in  
80 which this principle is embodied I now describe: The actuating-rod is shown at D. Connected with it is a pawl whose lower hooked end engages by gravity (or a spring may be used, if desired) with a ratchet-wheel E. The pawl  
85 is marked C, and it is shown out of connection. The ratchet-wheel has a drum attached to it, on which is wound the rope F, which is connected in the ordinary way with the wind-  
90 wheel, so that as the rope is pulled out it turns the wheel out of the wind and the ratchet-wheel is turned to pull the rope down by the upward movement of the actuating-rod. I have represented the ratchet-wheel as mount-  
95 ed on a cross-beam of the tower in Fig. 1. This is shown simply as a convenient location. Pivoted to the same support is a gravity-pawl G, which, like the actuating-pawl C, is in engagement with the ratchet-wheel when not forcibly held out of engagement.  
100 On the axis of the ratchet-wheel and drum is pivoted a lever H, and on the outer end of it is an adjustable weight K. The inner end of the lever is bent downward and bears against an arm k of the actuating-pawl C, and when



the weight is down this inner end pushes the pawl C out of engagement. To the lever H on the longer or outer end thereof is pivoted a bar *h*. This is connected to the pawl G by means of a pin set in the said pawl working in a slot in the bar, and the arrangement is such that when the weight is down the bar pushes upon the pin and pushes the pawl out of connection with the ratchet, so that when the lever is down both pawls are out. The inner end of the lever H is connected by a rod *l* to the sliding cylinder *m*, which, when the water is under compression, caused by the obstruction in the tank, is pressed downward, as fully explained in an application filed by me in the Patent Office on the 3d day of December, 1889. Normally the pawls are held out of work by the weight which is normally down; but when the tank is filled, and thereupon the water-obstructed pressure increases in the pump-barrel, the cylinder is forced down and draws upon the rod connected with the inner arm of the lever H, and thereby the pawls are permitted to come into engagement with the ratchet-wheel. The actuating-pawl thereupon works to turn the ratchet-wheel to wind the rope upon the drum, and thus pull the wind-wheel out of the wind. This causes the pump to cease working and prevents any accidents.

For greater security I provide an escape-valve *y* on the bottom of the cylinder, which is opened when the cylinder reaches its lowest limit, and this allows the water to escape to relieve the pressure. This obviates any danger of damage to the machinery. The weight on the lever H is made adjustable in position to give greater or less leverage, since it acts against the normal pressure of the column of water in the pipe leading to the tank, and this depends upon the height of the tank.

The apparatus may be applied to pumps now in use, and when once the weight has been adjusted according to the ascertained pressure of the water, resulting from the elevation of the tank, the position of the weight is fixed and need not again be disturbed.

By locating the hydraulic cylinder at the union of the discharge-pipe *P'*, as shown in Fig. 1, it can be added readily to any force-pump now in use.

In Fig. 2 the sliding cylinder *m* is shown as moving on a branch *m'* from the air-reservoir pipe Q, and in this figure also the ratchet-wheel and mechanism operating therewith is shown as supported from the pump-stock by an arm *x*.

I claim as my invention—

1. In combination with the pump-rod of a windmill, and a force-pump connected therewith, and with an operating connection to the windmill, arranged to turn it out of the wind, a loose connecting device between the pump-rod and the windmill connection capable of

being engaged and disengaged with the windmill connection by means of controlling mechanism, and the said controlling mechanism operated by the pressure of the water within the pump, substantially as described.

2. In combination with the pump-rod of a windmill and a pump connected therewith, a rope or chain for turning the wheel out of the wind, a ratchet-wheel and drum for drawing upon said rope, a pawl on the pump-rod, and mechanism actuated by the water-pressure to control the pawl, substantially as described.

3. In combination with the pump-rod of a windmill and a pump connected therewith, a connection for turning the wheel out of the wind, a ratchet-wheel and drum for drawing upon said connection, a pawl on the pump-rod, mechanism actuated by the water-pressure to control the pawl, and a holding-pawl, substantially as described.

4. In combination, the pump-rod, the pawl C, the ratchet-wheel and drum, and the cord to draw the wind-wheel out of the wind, the weighted lever arranged to operate upon the pawls, and connections between said lever and the pump, whereby said lever is actuated by the pressure of the water, substantially as described.

5. In combination with the pump-rod and the ratchet-wheel and drum, the gravity-pawls, the weighted lever arranged to act upon both pawls and hold them out of connection with the wheel when down, the pressure-cylinder, and a connection between said lever and the pressure-cylinder, substantially as described.

6. In combination, the reciprocating pump-rod of the windmill, a connection leading to the wheel for throwing the same out of the wind, a pawl carried by the pump-rod to act upon said connection, means for holding the said pawl out of engagement, and means operated by the back-pressure of water to release said holding means, whereby the pawl will act and operate the connections to the wind-wheel to throw the same out of the wind, substantially as described.

7. In combination, the pump-rod, connections leading to the windmill for throwing the same out of the wind, a loose connecting device between the windmill connection and the pump-rod and carried by the said pump-rod, and controlling means for said loose connecting device operated by the back-pressure of water in the pump, whereby the pump-rod is utilized as the primary means for throwing the wheel out of the wind, substantially as described.

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

PHILIP A. MYERS.

Witnesses:

A. C. BOGINARD,  
F. O. HAMILTON.