

(No Model.)

O. A. FARLEY.  
WINDMILL GOVERNOR.

No. 509,074.

Patented Nov. 21, 1893.

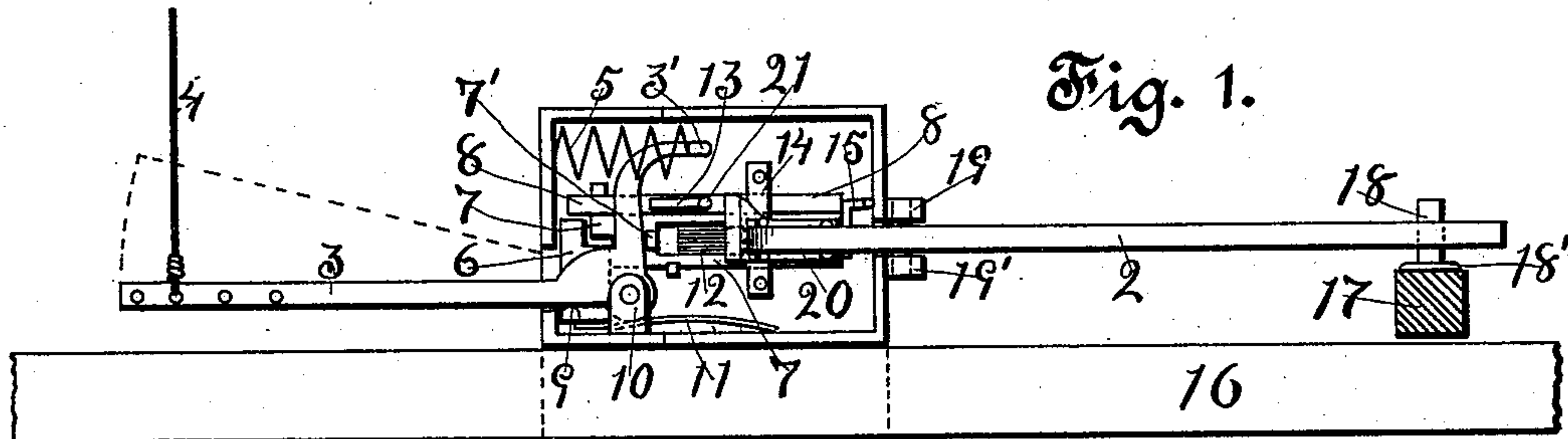


Fig. 1.

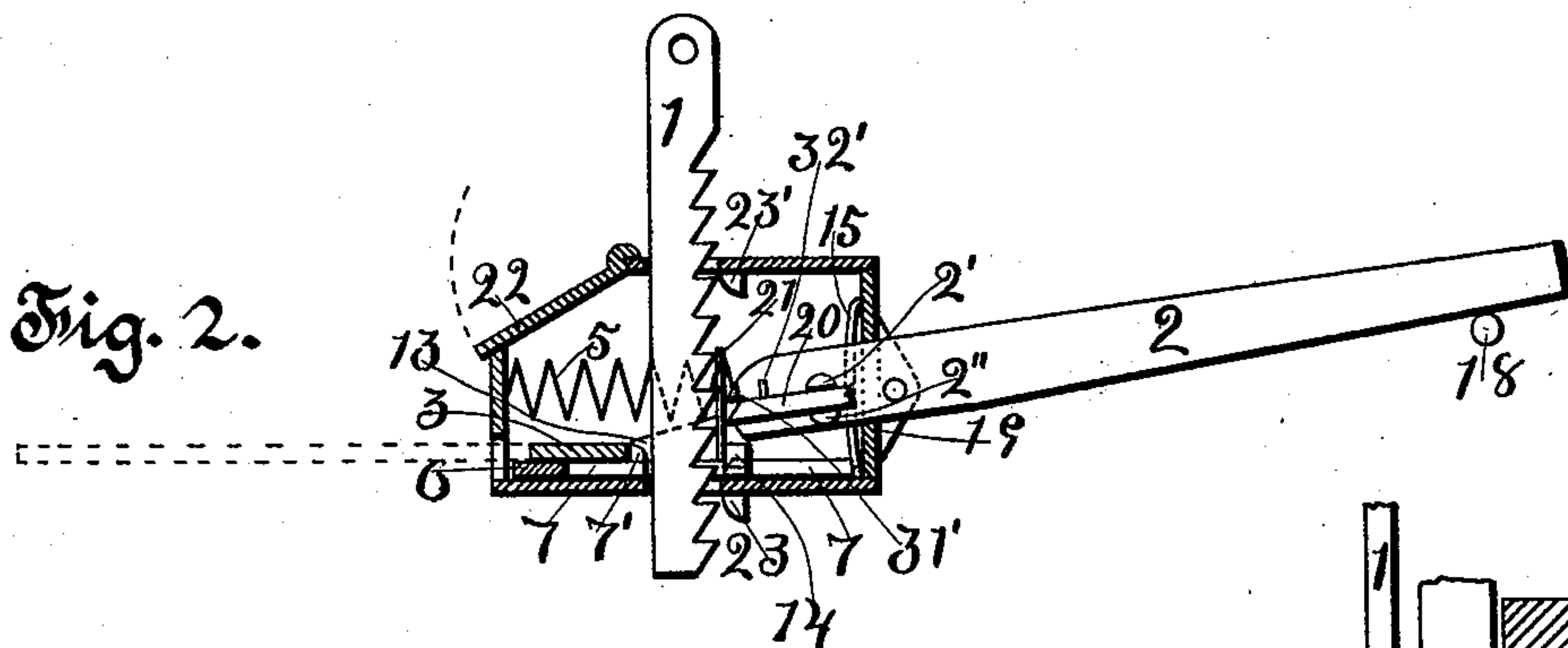


Fig. 2.

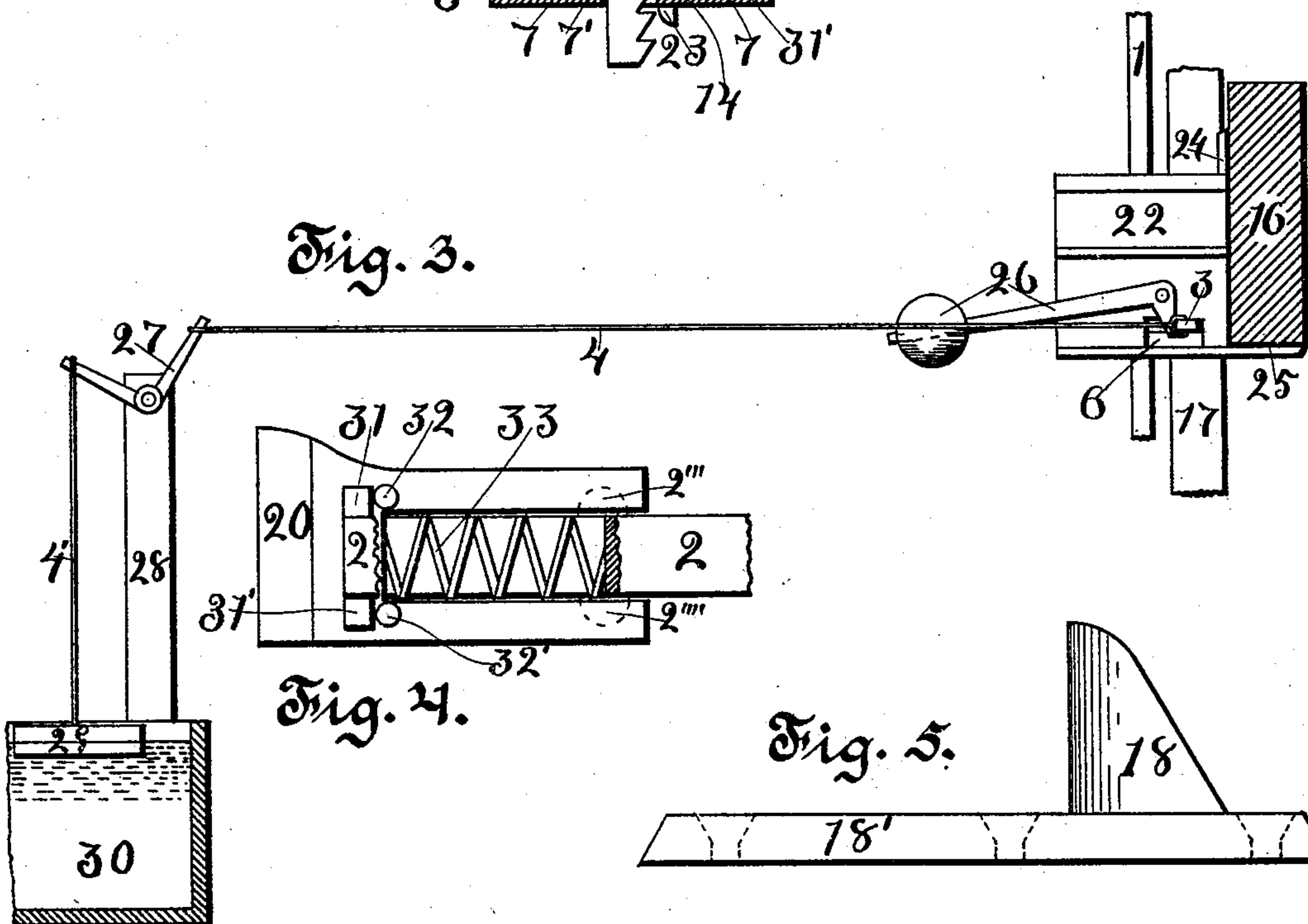


Fig. 3.

Fig. 4.

Fig. 5.

Witnesses:

Frank Kuff.  
R. B. Carter

Ozias A. Farley Inventor,  
By Lon. Vaughan.  
his Attorney.



# UNITED STATES PATENT OFFICE.

OZIAS A. FARLEY, OF CRAIG, NEBRASKA.

## WINDMILL-GOVERNOR.

SPECIFICATION forming part of Letters Patent No. 509,074, dated November 21, 1893.

Application filed March 27, 1893. Serial No. 467,872. (No model.)

*To all whom it may concern:*

Be it known that I, OZIAS A. FARLEY, a citizen of the United States, residing at Craig, in the county of Burt and State of Nebraska, have invented a new and useful Windmill-Governor, of which the following is a specification.

My invention relates to improvements in governors attached to windmills used for pumping water by which the operation of the mill is controlled by the height of the water in a receiving tank; and the objects of my improvement are to simplify the construction and still fill all the requirements of such a machine, and to assemble as nearly as possible all of the working parts in a small case that may be locked to protect the machine from meddlesome persons and accumulations of snow and ice. I attain these objects by the mechanism illustrated in the accompanying drawings in which—

Figure 1 is a top view of the machine, with the top of the inclosing case removed, and the ratchet-bar withdrawn. Fig. 2 is a vertical section parallel with and between the levers 2 and 3. Fig. 3, is an end view showing the manner of connecting with the actuating float 29 in the tank 30. Fig. 4, is a detailed top view of the spring pawl on the inner end of the lever 2; and Fig. 5 is a full size side view of the bracket 18 attached to the pump-rod to actuate lever 2.

Similar numerals refer to similar parts throughout the several views.

The vertically reciprocating ratchet-bar 1 of smooth rectangular section has one edge provided with teeth hooked upward, and an eyelet in the upper end by which it is attached to the line connected with the mill gear, and is inserted loosely through apertures 12, near the center of the top and bottom of the case. The rock-lever 2 is pivoted in the ears 19 and 19' so that its outer end normally falls on the bracket 18 attached to the pump-rod 17; the end of the lever within the case is provided with the spring-actuated sliding pawl 20 set to engage the ratchet-bar 1; the pawl 20 is bifurcated laterally to loosely receive the thickness of the lever between its forks, while the end of the lever is bifurcated vertically to loosely receive the vertical thickness of the pawl, by bringing the lever and

pawl together so that the base of the furcation of each is between the ends of the branches of the other, a cell is formed which contains the actuating coil spring 33, see Fig. 4; the pins 32 and 32' set in the pawl 20 impinge against the lugs 31 and 31' on the lever and prevent the spring from forcing the pawl and lever apart; these pins also prevent lateral motion of the pawl between the forks of the lever while the lugs 2', 2'', &c., prevent vertical motion of the lever between the forks of the pawl; the pawl slides back against the tension of the spring to pass the teeth of the ratchet as the inner end of the lever 2 ascends.

The sliding pawl or detent 7 is seated on the bottom of the case, retained loosely by lugs and the cleat 14, and actuated by the spring 15 to engage the teeth of the ratchet-bar, as in the position shown in Fig. 1, where it will be seen that the detent has a mortise agreeing with the aperture 12 in the bottom of case—but of greater length—through which the ratchet-bar passes. Lying along side the detent 7 and actuated in the same direction by the same spring 15, is the reciprocating brake and fender 8, having the perpendicular arm 21 and the bracket 13 shaped as shown in Fig. 2 to reinforce the arm. The bell-crank lever 3 is pivoted at its angle in the ear 10; the outer end has eyelets by which it is connected with a float in the water tank as shown in Fig. 3, using wire lines 4 and 4' and the lever 27, on the post 28; the other arm of the lever 3 projects across the detent 7 and brake 8, is shown curved in Fig. 1, so as to accommodate the required length of spring 5, which is attached between the end 3' and the end of the case, and actuates the lever against the weight of the float.

The locking bolt 6 is seated on the bottom of the case and moves at right angles to the direction of motion of the detent 7 and brake 8; it is impelled toward the detent and brake by the spring 11 and away from them by the outer arm of lever 3 which engages the pin 9 on the bolt.

The operation of the machine is as follows: The water becoming lower in the tank the float falls carrying the outer arm of lever 3 to the position shown by broken line in Fig. 1; the inner arm engages the bracket 7' on the detent and the bracket 13, on the brake and



fender, forcing them back against the spring 15, the detent away from the teeth of the ratchet-bar, and the arm 21 against the point of the pawl 20 forcing it back into the lever 2 and away from the ratchet-bar as shown in Fig. 2, releasing the bar and letting the mill into gear. The bolt 6 released by the same action of lever 3 impelled by the spring 11, slips into the place occupied by the receding adjacent ends of the detent and brake, and thus locks them in this position. It will be seen that the locking end of the bolt is stepped having a projection to lock the brake 8 while the full size of the bolt passes between the detent and end of case; by this means the brake and fender, and the detent are both locked or released simultaneously or nearly so; while the detent and brake are locked, the fender arm 21 bears against the pawl 20 and serves as a brake, so that the first time the bracket 18 on the pump-rod raises the outer end of the lever 2, the friction between the pawl and arm is sufficient to retain the outer end of the lever in an elevated position, and at rest while the mill is pumping. When the water has reached the desired height the arm of lever 3 engaging the pin 9 on the bolt 6 draws it back, releases the detent 7, and the brake and fender 8, carrying the arm 21 away from the pawl 20. The outer end of lever 2 falls on the bracket 18. The pawl and detent engages the ratchet-bar and draw the mill out of wind. A portion of the ratchet-bar between the teeth and upper end is left plain and full width so as to check the action of the pawl and lever above a certain point.

Where the tank is a long distance from the mill making the weight of the wire too much to be overcome by a heavy spring 5, and the usual construction, a bell-crank lever and weight 26 as shown in Fig. 3, may be used to release the strain. As shown in Fig. 3 the bottom of the case 25 projects under the timber 16, and a portion of the top 24 is extended upward and each provided with screw holes to receive wood screws, the timber 16 being attached at its ends to the frame of the windmill tower. The curved projections 23 and 23' prevent the teeth of the ratchet-bar from catching on the edges of the case, when the ratchet ascends and the mill goes into gear.

From the above description it will be observed that while the mill is pumping the governor is practically at rest, the pawl and detent are suddenly released and take full hold of the ratchet-bar at the start, doing the work positive and in good time.

A portion of the top of the case 22 is hinged to swing up in order to oil the inclosed mechanism.

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a windmill governor the combination of a rock-lever one end falling normally on a

bracket on the pump-rod, the opposite end provided with a spring-actuated pawl, set to engage a ratchet-bar attached to the windmill gear, a spring-actuated detent set to engage the ratchet-bar, a fender and brake set to engage the pawl, and means connecting the fender and brake, and the detent, with a float in the water tank whereby the falling of the float actuates the fender and brake against the pawl, and the detent away from the ratchet-bar substantially as described.

2. In a windmill governor the combination of a rock-lever connected with the pump-rod, one end provided with a pawl set to engage a ratchet-bar connected with the windmill gear, a detent set to engage the ratchet-bar, and a fender adapted to hold the pawl away from the ratchet-bar, a bell-crank lever one arm connected with a float, the opposite arm set to engage the detent, as the float falls, and force it away from the ratchet-bar, and actuate the fender against the pawl; a locking bolt arranged to lock the detent and fender, a spring actuating the bell-crank lever against the weight of the float, to draw the bolt and release the detent and fender as the float rises substantially as described.

3. In a windmill governor the combination of a rock-lever one end normally falling on a bracket on the pump-rod, the opposite end having a spring-actuated sliding pawl set to engage a ratchet-bar connected with the windmill gear, a spring-actuated sliding detent to engage the ratchet-bar, a fender and brake to bear against the point of the pawl, a bell-crank-lever one arm connected with a float and actuated against the weight of the float by a spring, the other arm set to actuate the detent away from the ratchet-bar and the fender and brake toward the pawl, a bolt to lock the detent and the fender and brake, the bell-crank lever set to engage and withdraw the bolt as the float rises and simultaneously release the detent and the brake and fender substantially as described.

4. In a windmill governor the combination of a rock-lever one end normally falling on a bracket on the pump-rod, the opposite end having a spring actuated pawl to engage a ratchet-bar connected with the windmill gear, a spring actuated detent set to engage the ratchet-bar a fender and brake to bear against the point of the pawl, a bell crank lever, one arm connected with a float, the other arm set to move the detent away from the ratchet-bar and the fender and brake against the pawl when the float falls substantially as described.

Signed at Craig, in the county of Burt and State of Nebraska, this 21st day of March, 1893.

OZIAS A. FARLEY.

Witnesses:

SWANTE MONSON,  
WOODSON BELL.