

(No Model.)

2 Sheets—Sheet 1.

C. & W. SILVESTER.
WINDMILL REGULATOR.

No. 446,627.

Patented Feb. 17, 1891.

Fig. 1.

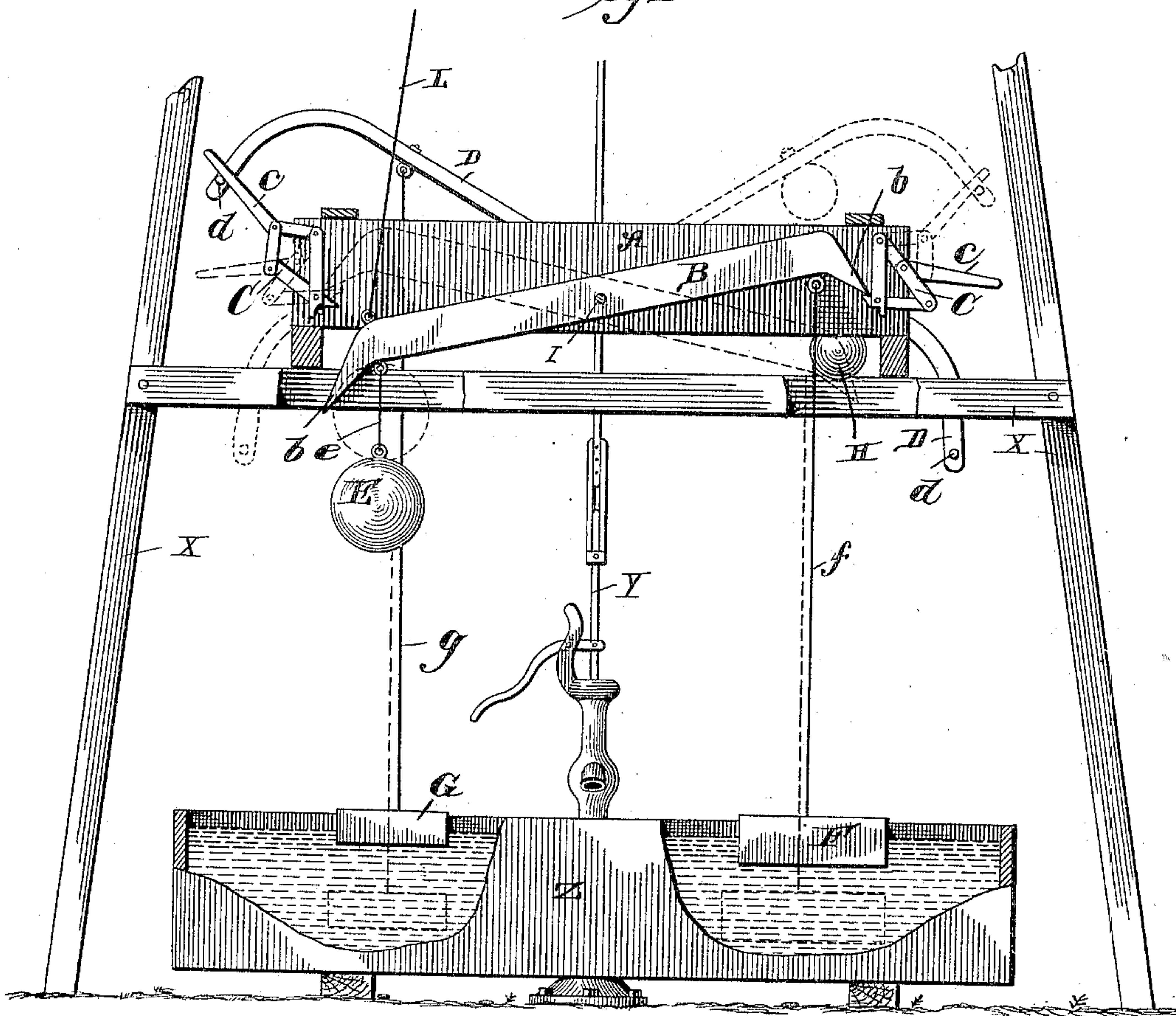
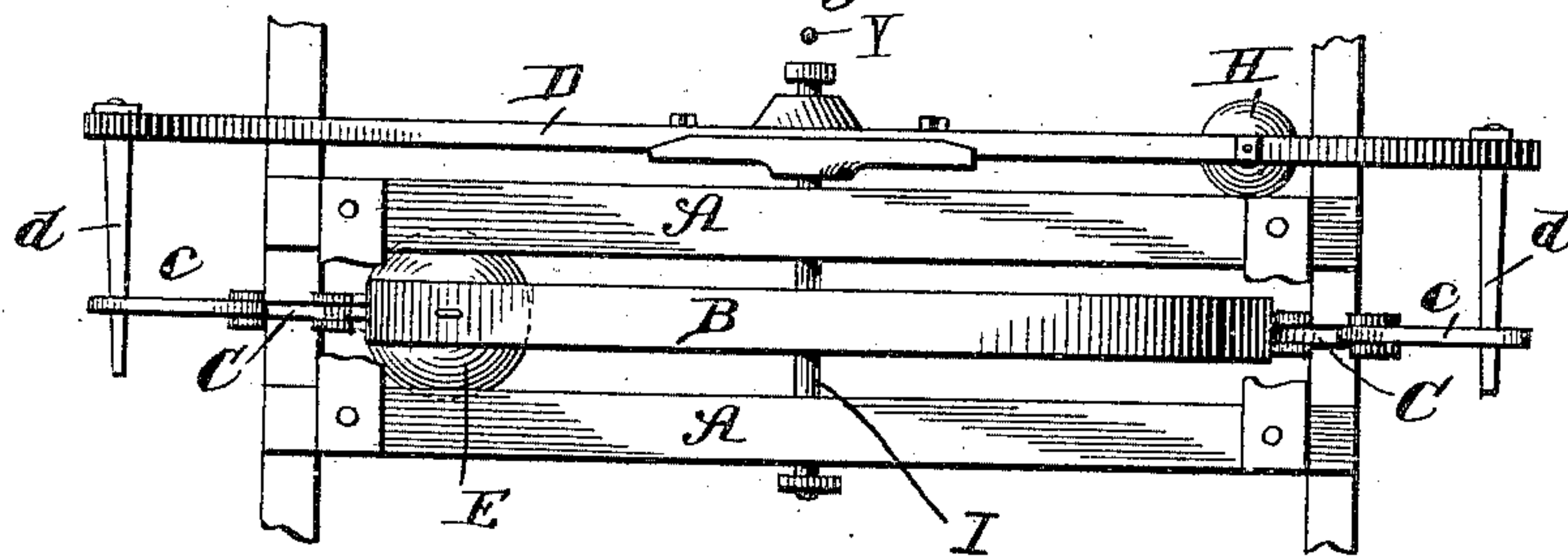


Fig. 2.



Witnesses

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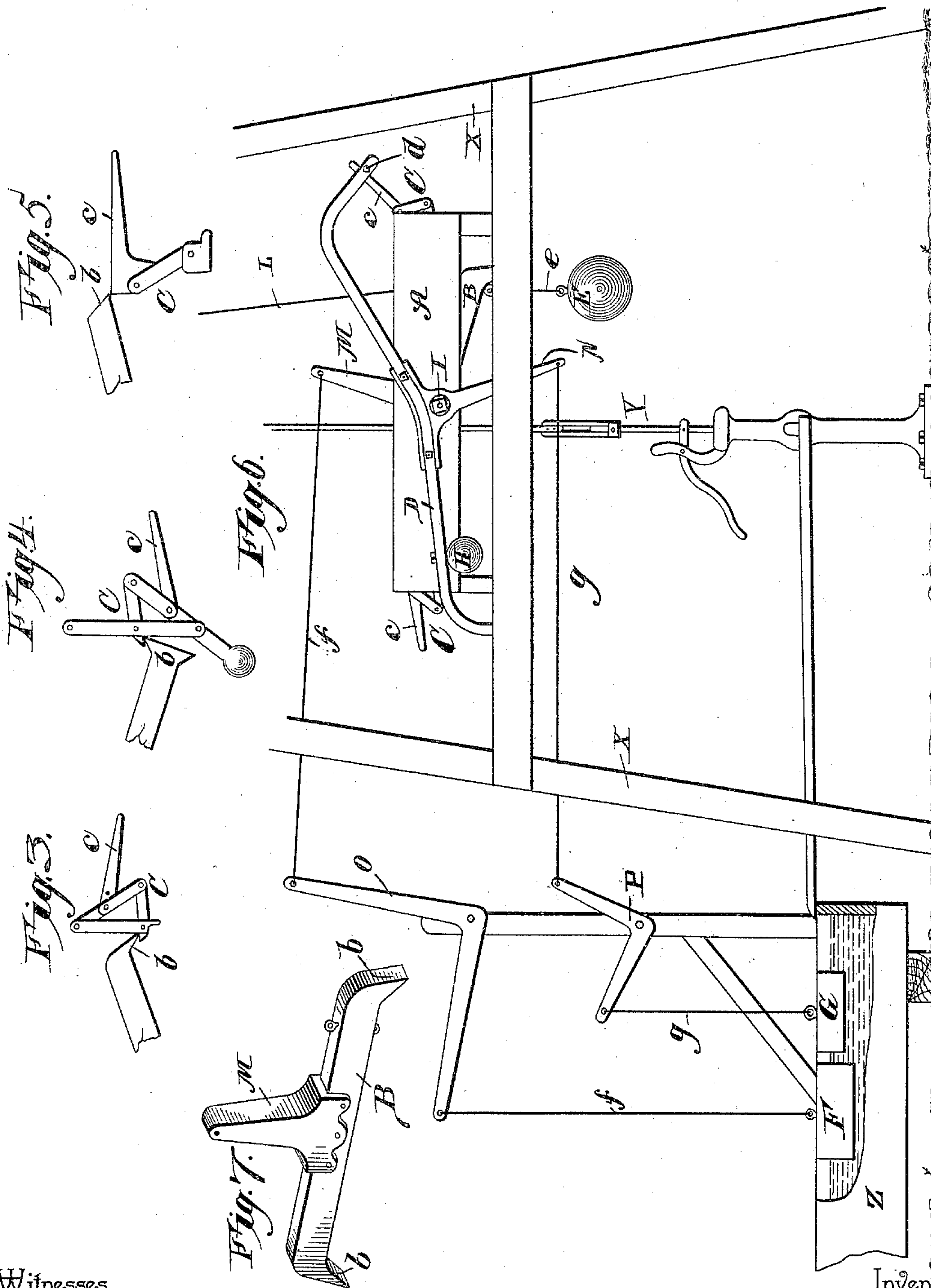
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UNITED STATES PATENT OFFICE.

CLARENCE SILVESTER AND WINFRED SILVESTER, OF WINDOM, KANSAS.

WINDMILL-REGULATOR.

SPECIFICATION forming part of Letters Patent No. 446,627, dated February 17, 1891.

Application filed October 11, 1890. Serial No. 367,775. (No model.)

To all whom it may concern:

Be it known that we, CLARENCE SILVESTER and WINFRED SILVESTER, citizens of the United States, residing at Windom, in the county of McPherson and State of Kansas, have invented a new and useful Windmill-Regulator, of which the following is a specification.

This invention relates to windmill-regulators; and the object of the same is to provide means whereby the motion of the wind-wheel will be suddenly stopped when the tank becomes full and suddenly started when the water therein falls to a certain level.

To this end the invention consists of the specific details of construction hereinafter described and claimed, and as illustrated in the drawings, in which—

Figure 1 is a side elevation of our improved windmill-regulator with the front of the box removed. Fig. 2 is a plan view of the same. Figs. 3, 4, and 5 are details of different forms of catches. Fig. 6 is a side elevation of the windmill-regulator arranged in a different manner and with the tank at a remote point. Fig. 7 is a perspective detail of the beam with the operating-arm attached thereto.

Referring to the said drawings, the letter X designates the frame supporting a wind-wheel, (not shown,) which wind-wheel drives the pump-rod Y and fills the tank Z in a well-known manner, and which wind-wheel is adapted to be thrown out of the wind, either by turning its blades or its tail, by a downward pull upon the regulating-wire L.

The letter A designates a box mounted upon the cross-bars of the frame X, and pivotally mounted upon a cross-bolt I through said box is a beam B, having sharpened extremities *b*, as shown. Connected to one end of this beam is a wire *e*, carrying a weight E, and connected to the other end of the beam is a wire *f*, which leads either directly, as in Fig. 1, or through a bell-crank lever O, as in Fig. 6, to a large float F, within the tank Z, the float being sufficiently heavy to overcome the weight E.

At each end of the box A is a catch C, adapted to engage one extremity *b* of the beam B, and having an outwardly-extending arm *c*. When this arm is raised, the catch is tripped and disengages the extremity *b*, but

at other times said extremity will automatically engage the catch and be supported thereby. The weighted end of the beam B is connected to the regulating-wire L, so that when the float F rises the weight E draws downwardly upon the wire L and stops the motion of the wheel; but when the float falls its weight overbalances the weight E and turns the beam upon its pivot I, thereby relaxing the tension on the regulating-wire and setting the wheel again in motion. This would be the operation if it were not for the catches; but these are operated in the following manner:

The letter D designates a bar also pivotally mounted upon the bolt I, and one end of this bar carries a weight H, while the other end is connected by a wire *g*, either directly, as shown in Fig. 1, or through a bell-crank lever P, as shown in Fig. 6, with a float G, also located within the tank. At each end of the bar D is a laterally-projecting pin *d*, adapted to engage the outwardly-extending arm *c* of the catch.

With this construction of parts, the operation is as follows: The wheel being in motion and the water rising within the tank Z as the latter is filled, the floats F and G slowly rise. The wire *f* becomes slack; but the beam B cannot move, because it is supported upon the left catch C. The rising of the float G permits the movement of the bar D under the influence of its weight H, and the pin *d* at the left end of this bar moves from the dotted position to the full-lined position of Fig. 1, striking the arm *c* and gradually retracting the catch C, until at the moment the tank becomes full the catch disengages the left extremity *b* and the beam B suddenly moves, as will be understood. This movement is permitted by the then slack wire *f*, and it draws upon the regulating-wire L and throws the wheel out of the wind. As the tank becomes gradually empty, the float G slowly descends, thereby moving the bar D from the full-lined to the dotted position of Fig. 1 and at the proper moment tripping the right-hand catch C, as will be understood. At this moment the large float F is suspended above the water-level, and as it is heavier than the weight E, when this end of the beam is disengaged from the catch the beam sud-

denly turns on its pivot, relaxes the tension on the regulating-wire L, and sets the wheel again in motion.

In the construction illustrated in Fig. 6 the operation is practically the same. In this case the tank Z is located at a distance from the frame X, and hence the wires *f* and *g* must be led for a distance thereto. In order to accomplish this, bell-crank levers O and P are provided, and the connections are substantially the same as used in bell-hanging. If the wires *f* and *g* lead upwardly to the beam B and bar D, the latter are arranged and constructed as shown in Fig. 1; but if these wires lead horizontally into the frame X, as shown in Fig. 6, the beam B is provided with an upwardly-extending arm M, and the bar D with a downwardly-extending arm N, to the outer ends of which arms the wires are respectively connected. The beam B, provided with this arm, is illustrated in detail in Fig. 7.

It will be obvious that if the arrangement shown in Fig. 6 be slightly altered and one upwardly-tripping catch C be used, Fig. 3, and one downwardly-tripping, Fig. 4, the bar D and beam B may be pivoted at one end and the two catches may engage their free ends, one catch holding the beam when it rises and the other when it descends, and each being tripped by the movement of the bar D. By using other styles of catches the beam and bar may stand in an upright position, the weights E and H being attached to the ends of arms M and N.

Although we have described but one pivot-bolt I, two may be used, if preferred.

Various changes in the arrangement and construction of the parts of this device will be suggested by experience and may be made without departing from the spirit of our invention.

What is claimed as new is—

1. In a windmill-regulator, the combination, with the centrally-pivoted beam, a weight depending from one end thereof, the wind-wheel regulator-wire being attached to this end, and a float heavier than said weight, connected to the other end of said beam and being located in the tank, of catches automatically engaging the extremities of said beam when in either of its extreme positions, a smaller float in the tank, and connections, substantially as described, between the catches and said smaller float for tripping the catch at the heavy end of the beam when the water rises

and at its other end when the water falls to a certain point, as set forth.

2. In a windmill-regulator, the combination, with a centrally-pivoted bar, a weight near one end thereof, a float heavier than said weight, connected to the other end of said bar and being located in the tank, and catches tripped by the extremities of said bar when it oscillates upon its pivot, of a beam to which the regulating-wire is connected, said beam being centrally pivoted and its extremities alternately engaged by said catches, a weight E, connected to the beam below the regulator-wire, and a float F, heavier than said weight, connected to the other end of said beam and operating in the tank Z, as set forth.

3. In a windmill-regulator, the combination, with a windmill-frame X, the box A, carried thereby, the bolt I through the box, the beam B, having extremities *b*, and the bar D, centrally pivoted on said bolt, weights E and H, connected, respectively, to one end of said beam and bar, and the regulating-wire L, connected to the weighted end of the beam, of the floats F and G within the tank, the former being heavier than the weight on the beam and being connected to the light end thereof and the latter being heavier than the weight on the bar and also being connected to its light end, catches C at the ends of said box, automatically engaging the extremities *b* of the beam when raised and having outwardly-extending arms *c*, and laterally-projecting pins *d* at the extremities of said bar, adapted to engage the arms of and to trip said catches when such extremities rise, all as and for the purpose hereinbefore set forth.

4. In a windmill-regulator, the combination, with the regulator proper, catches engaging the same, and a regulator-wire leading from said regulator to the wind-wheel, of a pivoted bar having pins engaging said catches, a weight at one end of said bar, and a cord leading from the other end of said bar and provided with a float in the tank which is heavier than said weight, substantially as hereinbefore set forth.

In testimony that we claim the foregoing as our own we have hereto affixed our signatures in presence of two witnesses.

CLARENCE SILVESTER.
WINFRED SILVESTER.

Witnesses:

W. H. HAWTHORNE,
H. C. ZINK.