2 Sheets—Sheet 1.

D. TURNBULL.

REGULATING WIND-MILLS.

No. 182,393. Patented Sept. 19, 1876.

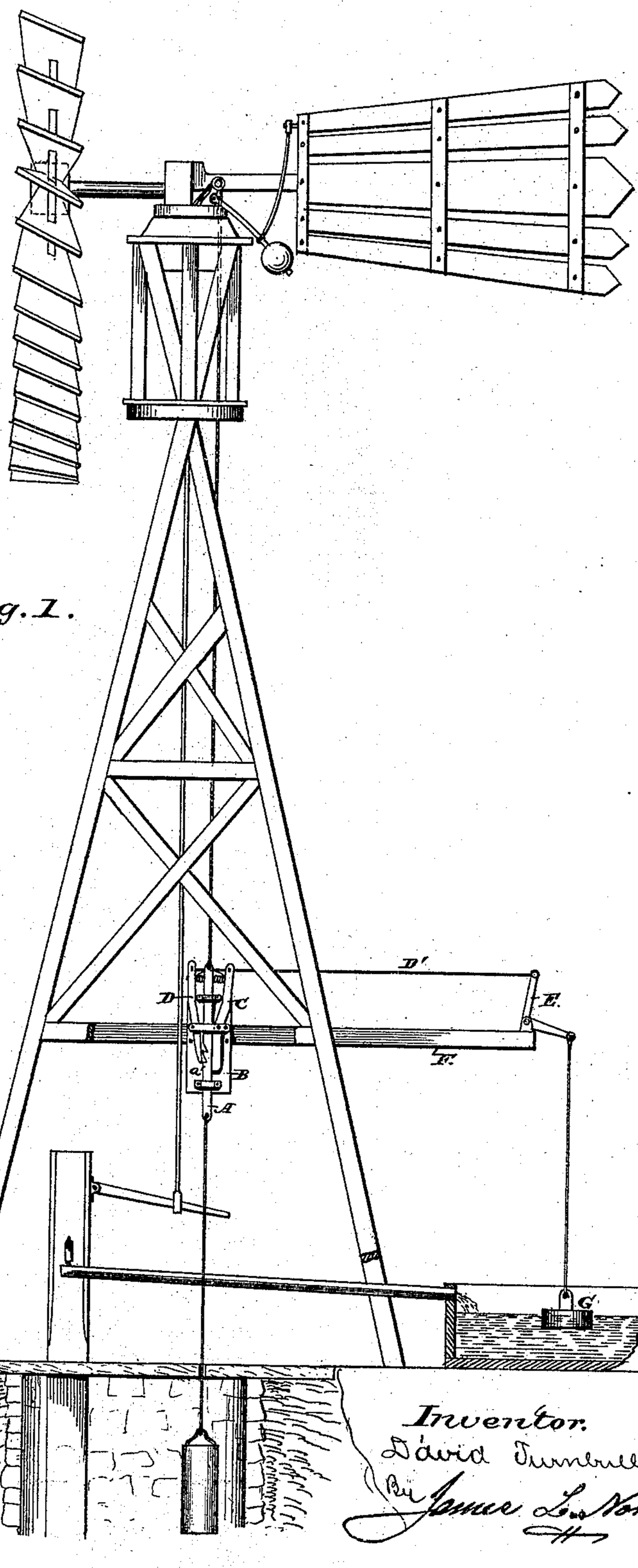

Fig. 1.

Attest:
H. L. Perrine
Jos. L. Coombs

Inventor.
David Turnbull
By James L. Norris.
Atty.

2 Sheets—Sheet 2.

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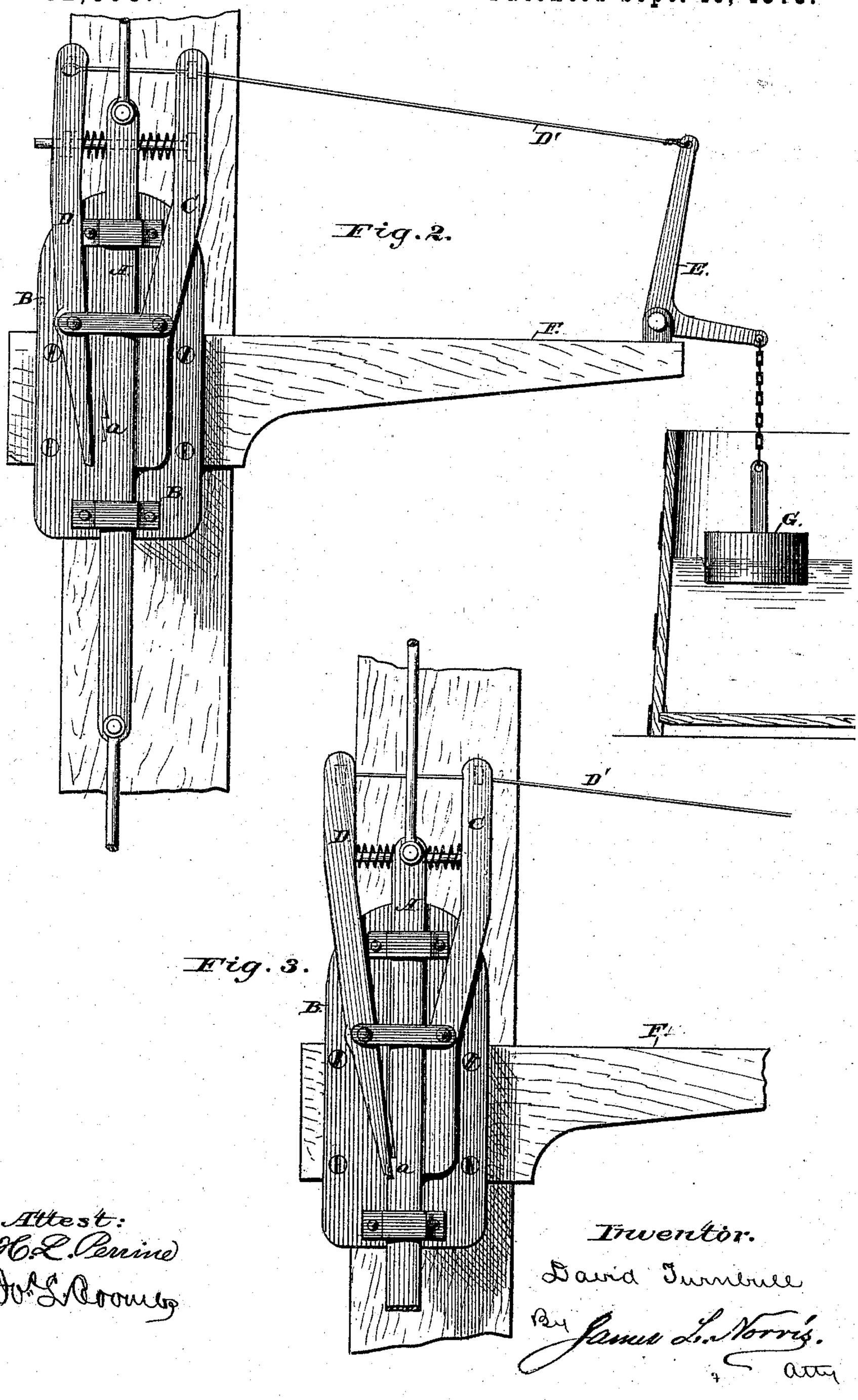

Fig. 2.

Fig. 3.

Attest:
H. L. Perrine
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By James L. Norris.
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UNITED STATES PATENT OFFICE

DAVID TURNBULL, OF WAVERLY, ILLINOIS.

IMPROVEMENT IN REGULATING WINDMILLS.

Specification forming part of Letters Patent No. **182,393**, dated September 19, 1876; application filed March 6, 1876.

To all whom it may concern:

Be it known that I, DAVID TURNBULL, of Waverly, in the county of Morgan and State of Illinois, have invented certain new and useful Improvements in Regulating Windmills, of which the following is a specification:

This invention relates to certain improvements in apparatus for regulating the operation of windmills, and is particularly designed for that class of windmills employed for pumping water, its object being to provide for automatically shifting the mill and pumping machinery into gear when the water in the tank is exhausted or nearly exhausted, so as to automatically refill the tank; and it consists in combination with the vertically-sliding rod generally employed for throwing the windmill out of gear with the pumping machinery, of a spring lever or pawl, adapted to engage in a ratchet or notch on one side of the rod, and hold the same, said lever being operated by means of a weighted float suspended in the water-tank in such position that when the tank is full the float will be elevated and will allow the pawl to engage the ratchet, and thus hold the machinery out of gear until the water in the tank falls, allowing the weighted float to release the pawl, and thus allow the machinery to automatically fall into gear, in order to start the pumps to supply the deficiency.

In the drawing, Figure 1 represents an elevation of a windmill with my improvement applied. Fig. 2 represents an elevation of my improved apparatus, showing the parts in position to throw the machinery in gear, and Fig. 3 a similar view, showing the position of the parts when the machinery is thrown out of gear.

The letter A represents a section of the shifting-rod common to most windmills, which is arranged to slide vertically in the supporting-frame B, secured in any convenient manner to the frame-work of the windmill. C represents a stationary bar of metal secured to the frame B and projecting above the same at one side, and D a lever secured to the frame B, on the opposite side of the shifting-rod A to that on which the bar C is secured. Said lever also projects above the frame B, and between its end and that of the bar C is secured a spiral spring, which causes the lower end of the lever D to set against the side of the shifting-rod A. Said rod is provided with a ratchet or one or more teeth, *a*, at the side toward the lever D, in which the end of said lever engages when the said rod A is in proper position.

E represents an angle-lever, pivoted in a suitable bearing attached to a projecting beam, F, or other portion of the frame-work of the mill, in suitable position over the water-tank. The vertical arm of said angle-lever is secured to the upper end of the spring pawl or lever D′, and to the horizontal arm is secured a weighted float, G, which is suspended in such position in the tank that, as long as there is sufficient water in the tank, it will buoy said weight up and allow the spiral spring to set the lever D against the shifting-rod A, so as to engage in the notch or ratchet thereon when said notch is depressed to throw the machinery out of gearing, and, when the water falls below a certain level, will allow the weight to overcome the resistance of the spring and release the shifting-rod, throwing the machinery into gear to start the pumps and refill the tank.

The operation of my apparatus is as follows: The shifting-rod A being connected in the customary manner to the shifting parts of the machinery of the windmill, when the tank is properly filled, the shifting-rod is depressed, as usual, for throwing the machinery out of gear. The float, being buoyed up by the body of water in the tank, allows the spring to throw the pawl into the ratchet on the shifting-rod, and thus hold it until the water is nearly or quite exhausted from the tank, when the weight is allowed to fall, releasing the lever from the ratchet, thus throwing the machinery into gear and starting the pumps.

What I claim, and desire to secure by Letters Patent, is—

In combination with the ratcheted or notched shifting-rod, the spring lever or pawl, and weighted float connected therewith and suspended in the water-tank, the whole arranged to operate substantially as described.

In testimony that I claim the foregoing I have hereunto set my hand in the presence of the subscribing witnesses.

DAVID TURNBULL.

Witnesses:

JAMES W. MANSON,

J. H. CHALLEN.