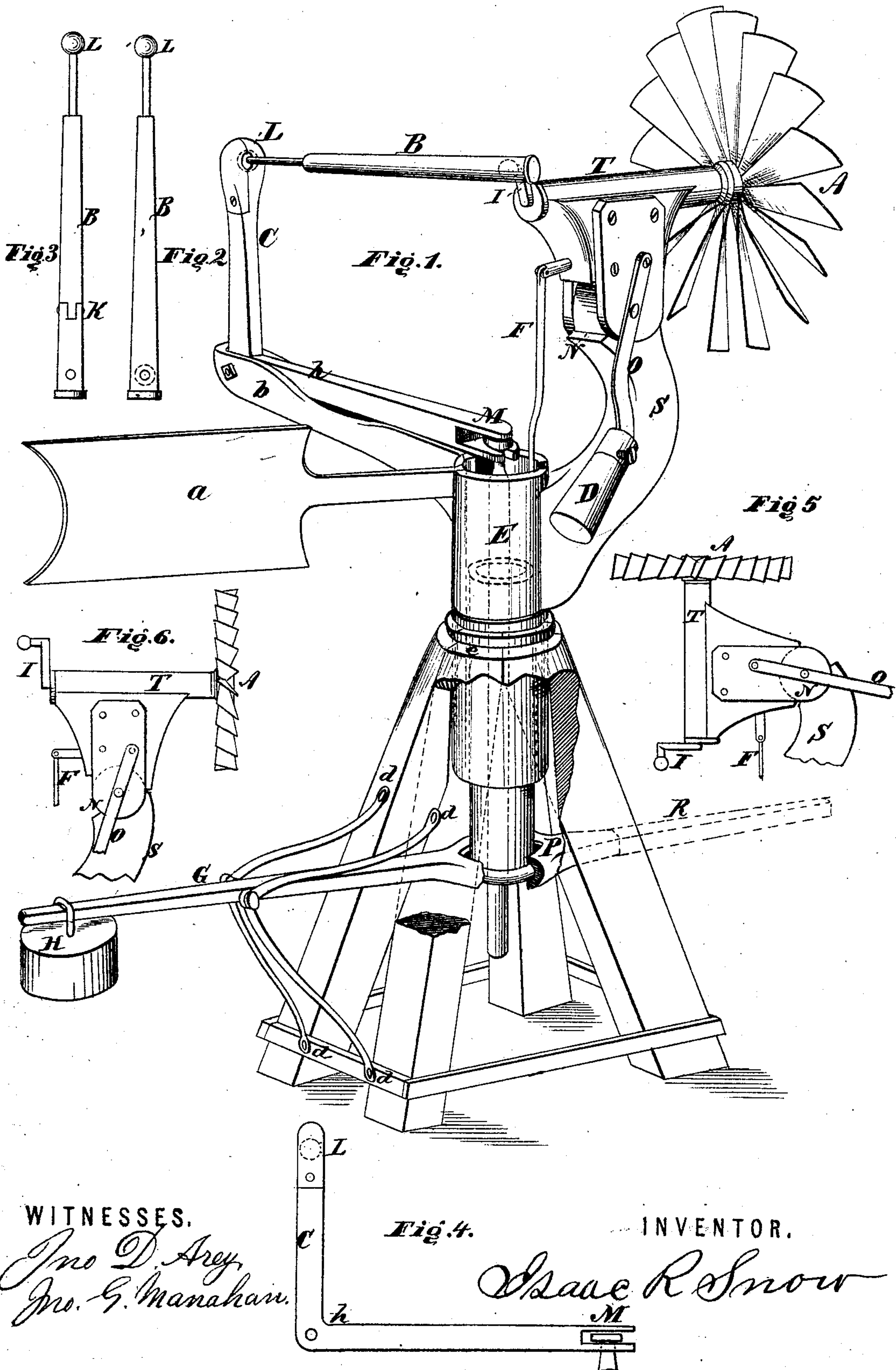


I. R. SNOW.
Wind Mills.

No. 124,021.

Patented Feb. 27, 1872.



WITNESSES.

Geo D. Arey
Geo. G. Manahan.

Fig. 4.

INVENTOR.

Isaac R. Snow

UNITED STATES PATENT OFFICE.

ISAAC R. SNOW, OF STERLING, ILLINOIS.

IMPROVEMENT IN WINDMILLS.

Specification forming part of Letters Patent No. 124,021, dated February 27, 1872.

SPECIFICATION.

I, ISAAC R. SNOW, of the city of Sterling, in the county of Whiteside and State of Illinois, have invented certain Improvements in Windmills, of which the following is a specification:

My invention relates to the use of the wind as a motive power for pumping water and such other purposes as such power may be found applicable to; and the object of my invention is to so arrange the axle of the windwheel upon a knee-joint that such wheel may be held to the wind with any desired degree of force; and that a wind of certain violence will turn or lift the wheel over horizontally, presenting but the edge or rim of the wheel to the wind; and that a less degree of wind will so turn or lift the wheel proportionately, thus preventing the wheel from attaining too great velocity and from being damaged by too high wind; and, at the same time, the wheel may operate by means of ball-and-socket couplings in any of its positions.

In the drawing, Figure 1 shows the machine set up and ready to be attached for use; Figs. 2 and 4, parts of the machine. Fig. 5 shows the wind-wheel turned back horizontally; Fig. 6, the wheel fully to the wind. Fig. 3 is the pitman B, with joint at R, and but one ball-coupling.

In Fig. 1, A is the ordinary old-style wind-wheel, made with any number of arms, not less than four, and having at the opposite end of its axle a crank, to which is fixed the solid ball I. This axle passes through and revolves in the hollow cylinder T, which cylinder is firmly fastened horizontally on the top of the short post N. The post S is fitted at its top into the bottom of the post N, so as to form a knee-joint at the junction of these posts, which allows the post N, and with it the wheel A, to be turned from a perpendicular to a horizontal position. B is a pitman, made with a socket at one end, which receives the ball I on said crank, and with a similar solid ball firmly fixed at its other end. C is a right-angled lever, with a socket at L to receive the solid ball on the pitman B, and working on a pivot at

its angle *h*. The lever C, at its end M, has a horizontal slot, and also a vertical slot extending from its lower side into the first slot; and into these slots is inserted the head of the vertical shaft or bar which is attached to the piston-rod of the pump. D is a weight attached by the lever O to the post N at such angle with the perpendicular as to assist in throwing the wheel backward when square to the wind, or forward when the wheel is horizontal. E is a common hollow cylinder, having a flange entirely around it at and extending down through the collar *e* far enough to sit steadily, and revolving on the collar *e* to suit the direction of the wind. F is a rod, which at its upper end is attached on a pivot to the rear of the post N, and at its lower end is fastened in the upper end of a second hollow cylinder inside of E. This second cylinder extends down through and below the cylinder E to the point P on the lever G. This inner cylinder is provided with a head at its lower extremity by forming a rim around its outer circumference, which head is fitted into a grooved circular collar in the lever G at P, so that the movement of the cylinder up or down gives corresponding motion to the lever, and vice versa. But the cylinder may revolve laterally independent of the lever. G is a lever working on a pivot-fulcrum at the junction of the braces *d d d d*; and, by moving the weight H in or out on G, the wheel A is held to the wind with any desired degree of force. By removing the weight H, and placing it on the lever G at the point R, the wheel A may be folded permanently back. *a* is the ordinary tail or rudder fastened to E to guide the wheel to the wind. *b* is a brace mortised in cylinder E to support the lever C. By the use of the knee-joint, connecting N and S, the wind, striking the face of the wheel A, has a tendency to turn the wheel back and up, while the force of the weight H, acting on the lever G and through the inside cylinder and rod F, tends to hold the wheel A forward and down; and, when the force of the wind upon the wheel A exceeds that of the weight H, the wheel A will be turned back and up until, by presenting a more obtuse angle to the wind, the force of the wind upon the wheel A is reduced to that

of the weight H; and, as the wind decreases in force, the weight H will throw the wheel more squarely to the wind, increasing the power of the latter, thus in a manner equalizing the force of the wind.

By the use of the ball-and-socket joints or couplings at I and L, the same motion is communicated to the lever C in whatever position the wheel A may be in.

I do not claim as my invention the cylinder

E, nor the tail *a*, nor the wheel A, nor generally the post S, nor the cylinder T; but

What I do claim as my invention is—

The wheel A screwed to shaft T, provided with the joint N, the counter-balance D, connecting-shafts B, C, and *h*, rod E, and weight H, when combined to operate as set forth.

Witnesses: ISAAC R. SNOW.

JNO. G. MANAHAN,

CHAS. R. STEDMAN.