W. PECK.

WINDMILL.

No. 192,787. Patented July 3, 1877.

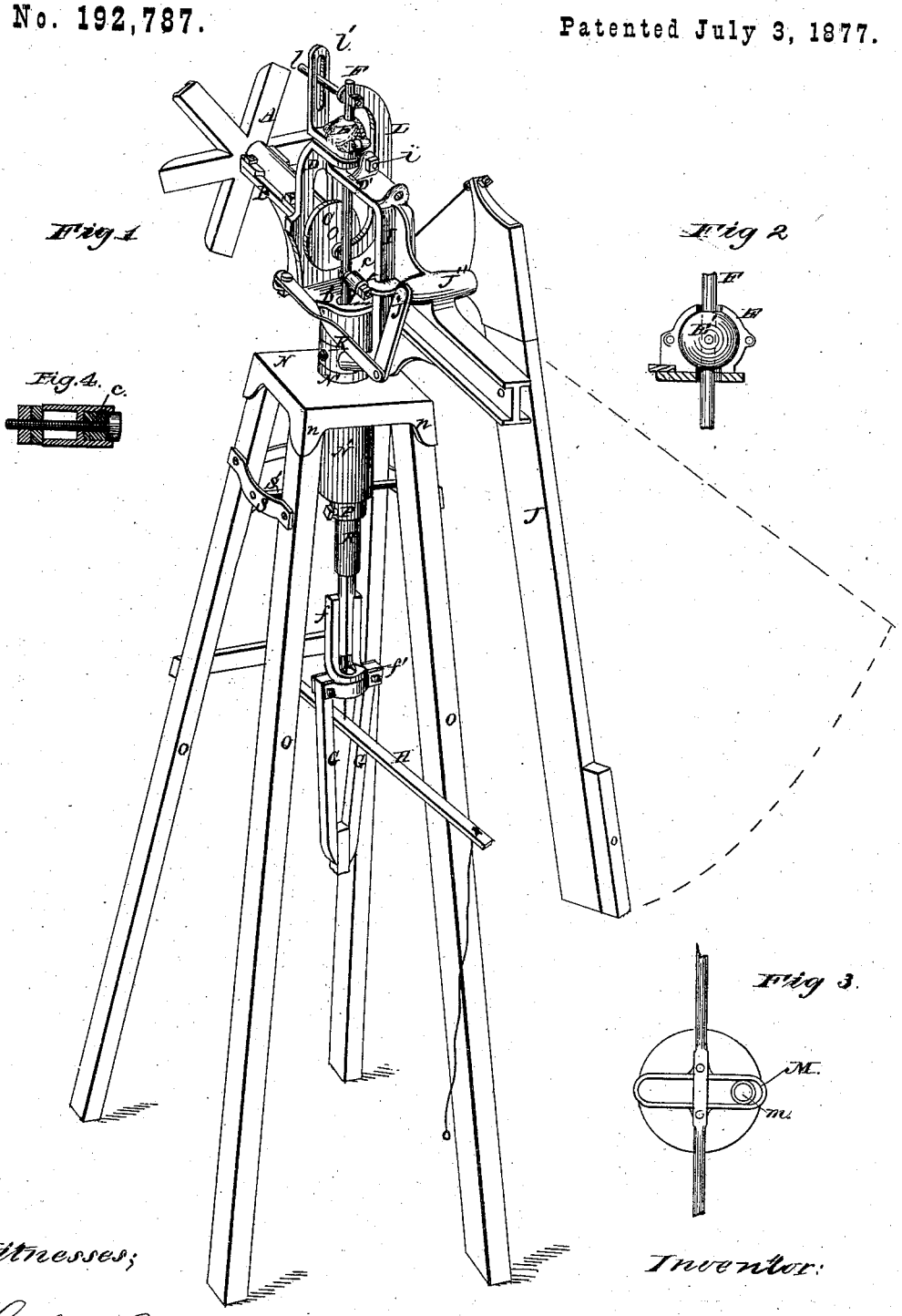

Fig. 1

Fig. 2

Fig. 4.

Fig. 3.

Witnesses;

G. W. Lord

S. P. Marne

Inventor:

Walter Peck

UNITED STATES PATENT OFFICE

WALTER PECK, OF ROCKFORD, ILLINOIS.

IMPROVEMENT IN WINDMILLS.

Specification forming part of Letters Patent No. **192,787**, dated July 3, 1877; application filed April 2, 1877.

To all whom it may concern:

Be it known that I, WALTER PECK, of Rockford, in the county of Winnebago and State of Illinois, have invented a new and useful Improvement in Windmills; and I do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

Figure 1 is a perspective view of the windmill. Fig. 2 is a view of the ball-guide, with the retaining-case partially removed. Fig. 3 is a modification of the pitman-rod attachment, and Fig. 4 represents an enlarged view of some of the details in Fig. 1.

Similar letters of reference denote corresponding parts in all the figures.

The object of the invention is to provide a windmill that shall be self-regulating, simple in its construction and operation, durable in its parts; and to this end it consists of the ordinary wind-wheel, mounted upon a horizontally-revolving shaft, mounted upon a swinging frame, and so arranged that the whole will turn laterally upon central vertical hinges, so as to approach to and recede from the vane, for the purpose of automatically regulating as the wind varies in force, the details of which will be hereinafter described.

In the drawings, A represents the hub or spider of the wind-wheel, to which the supporting-arms are securely attached. B is a horizontally-projecting arm, upon which, in suitable bearings, the wind-wheel shaft is mounted. Upon the inner end of this shaft is secured the pitman-driving wheel C. D is the vertical part of the casting, of which the arm A is a portion. D′ are the eyes which form the hinge for giving the lateral movement to the wind-wheel, for a purpose hereinafter described.

Mounted upon the upper eye or hinge is a circular case or box, E, which incloses a ball, E′. F is the pitman-rod, the upper end of which plays vertically through the inclosed ball, while the lower end is, by a swivel-joint, connected to the bifurcated pump-rod G. *f* is a perforated iron forming a part of the said swivel, and *f′* the plates forming the other part, by which the pitman and pump rods are united. H is a shifting-lever, for turning the wheel and bringing the same in line with the vane when it is desired to stop the wheel. This lever is pivoted to the tower of the windmill at one of its ends, and vibrates between the legs of the pump-rod, and is also provided with connecting and operating wires or rods, whereby the wheel can be thrown into or out of gear by an attendant while standing upon the ground, as it will be borne in mind that this lever is secured to the tower at a point near the top.

It will be observed that by using the bifurcated rod a central draft is given, which could not be done were the pitman-rod and the pump-rod secured together by a swivel placed upon the sides of the rods, as is ordinarily done. I is a casting similar in form with the casting D, but having a horizontal part for the attachment of the vane. J is a weighted lever, permanently secured to a cranked journal, J′, which in turn rolls in the box J″, located upon the vane part of the casting I. K is a connecting-rod, which unites the cranked journal and the wind-wheel carrying-frame. As the free end of the lever J is raised, by drawing down the lever H or otherwise, the crank end of the journal J′ is thrown rearward, which, by the connecting-link, will swing the wheel around with the edge to the wind, and bring the same to a state of rest. L is a vertically-curved lever, pivoted at its lower end to the wheel C at a point one side of its center, while the upper end is hinged to the pitman-rod F, and in such manner that as the wheel revolves a crank-connection is formed with the pitman-rod, which, in turn, connects with the pumping-rod, and thus operates the pump or other machinery adapted for use with the windmill. *l* is a guide, which moves up and down with the pitman-rod, and acts as a lever to keep the same in a true position while the mill is being swung around in regulating while the mill is at work, it being remembered that as the mill turns the pitman-rod and the attached perforated swivel *f* turn with it. *l′* is a slotted casting, secured to the mill in a vertical position, and within which the part *l* moves. *i* is a stop placed over the upper hinge of the wind-wheel casting to prevent any uprising of the part. M is a modification, (shown in Fig. 3,) which is substituted in place of the

curved oscillating correcting-lever L, which, after being bolted to the pitman-rod, forms a slotted yoke, within which the crank wrist-pin, carrying the anti-friction roller *m*, revolves, thus giving the vertical motion to the said rod without the use of the oscillating lever, before mentioned.

e are elastic bumpers, placed upon both sides of the vertical part of the casting I, and against which the wind-wheel frame strikes after being swung around upon the vertical hinge. These bumpers have to each a large-headed bolt, made adjustable in its length by the use of nuts and washers, the bolt being encircled with an elastic spring, of rubber or other material, one end of which rests against the inner shoulder of the head, the other end resting against the projecting lug upon the main casting, and the whole being incased for protection.

N is a metallic cap, provided with downwardly-projecting ears *n*, by which the four posts of the tower O are held together at their top ends. This cap is also provided with a central tube, N′, which extends above the cap far enough to form a bearing for the mill to turn upon, and extends far enough below the cap to form a box for the vertical support, as well as for leveling and holding the whole in a true vertical position. P is a tube, preferably made from gas-pipe, which has a diameter equal to the inner portion of the tube N′, and extends above the said tube far enough to pass through the lower ear upon the iron I, and being bolted to said ear, a journal is formed for the lower hinge of the wheel-frame to turn upon. It also extends far enough below the tube N′ to receive a bolt or other projection to prevent an uprising of the mill. R is still another tube, secured to the pitman-rod at the lower end of the tube P, so as to form a hollow circular bearing to the pitman-rod at this point sufficiently large to allow of the free passage of the regulating-wire before described. S are braces, preferably made of metal, secured to the tower-posts at a point near the lower end of the tube N′. S′ are screw-threaded bolts secured to the tube N′, and extending radially therefrom far enough to pass through the braces S to receive two nuts, one upon either of the braces, so that the tube can be easily adjusted laterally, and firmly held in a true vertical position. It will be observed that by the arrangement of the weighted lever J and connections, a varying resistance is given the wheel—that is, when the lever is in nearly a vertical position, less force is required in the starting than when the same has more nearly assumed a horizontal line, so that the wheel starts easily in its deflecting course, but the greater the deflection the greater is the resistance offered by the weight placed upon the long end of the lever, as will be readily understood without further description.

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

1. In a wind-wheel having a central vertical hinge or hinges, the combination of the weighted lever J, cranked journal J′, bearing J″, connecting-rod K, and wheel-frame D, arranged and operating substantially as described, and for the purpose set forth.

2. In a windmill hinged upon its vertical or nearly vertical center, the combination of the wheel-frame, the vane-carrying frame, and the elastic bumper *e*, have the spring-adjusting bolt and inclosing-case, arranged and operating substantially as described and specified.

3. In combination with the wheel-frame, the crank-head C, oscillating lever L, pitman-rod F, guides *l* and *l′*, all arranged and operating substantially as described, and for the purpose set forth.

4. The combination of the pitman-rod F, guides *l l′*, and ball-guide E′, inclosed in case E, all arranged and operating substantially as described, and for the purpose set forth.

5. The combination of the cap-tube or box N′, radial rods S′, and braces S, secured to the tower in such manner that the lower end of the tube may be adjusted and supported, substantially as described, and for the purpose set forth.

6. The combination of the pitman-rod and tubes R, N′, and P, arranged substantially as described, and in such manner that the regulating-rod, which connects the levers J and H, shall pass through the openings in the said tubes, substantially as herein specified and set forth.

7. In a windmill having the open swivel-connection attached to the pitman-rod, the bifurcated pump-rod G, whereby a direct central lift shall be had, substantially as described and set forth.

This specification signed and witnessed this 27th day of March, 1877.

WALTER PECK.

Witnesses:
G. W. FORD,
S. V. MAINE.