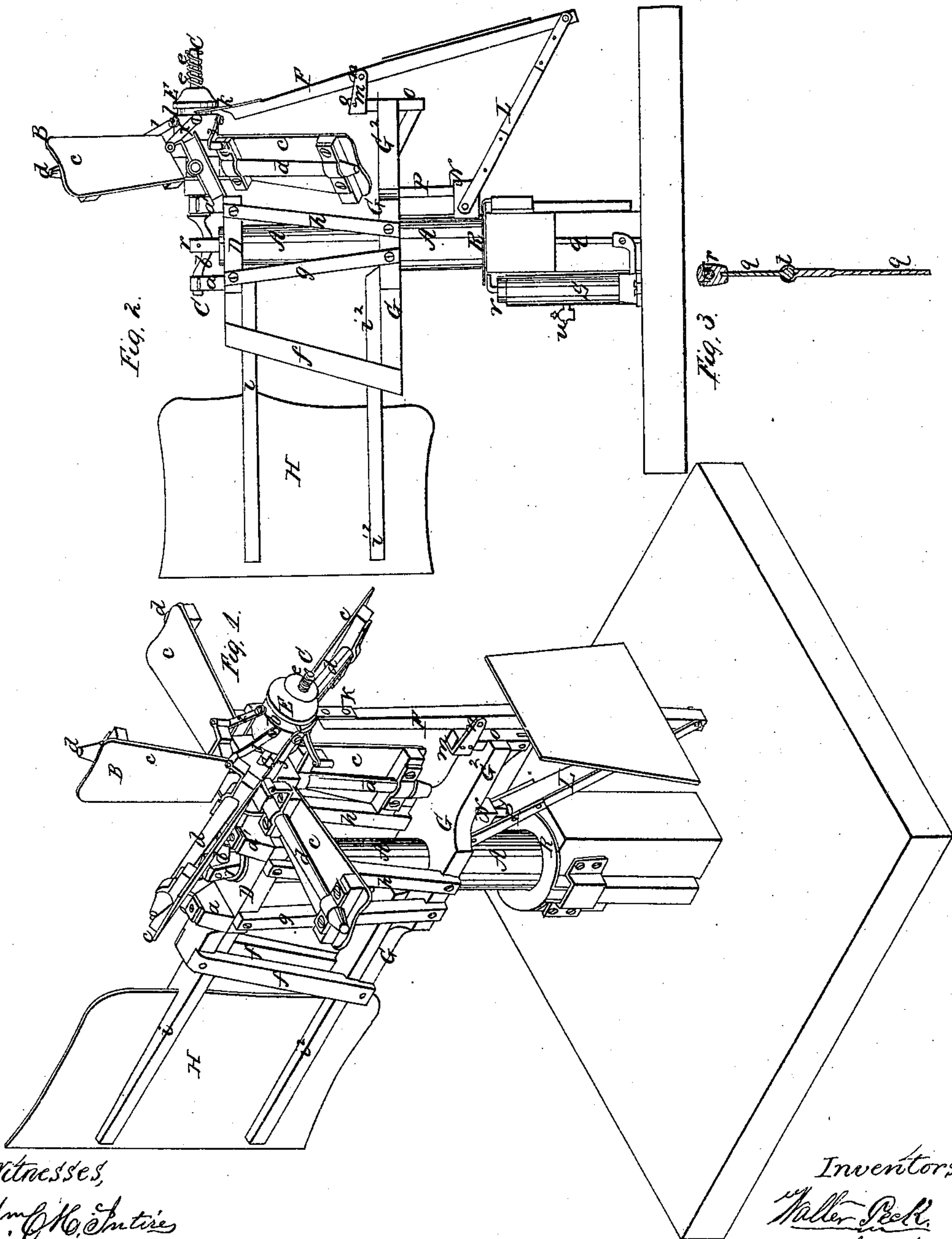


W. Peck,

Wind Wheel,

N^o 28,770.

Patented June 19, 1860.



Witnesses,
H. C. McIntire
L. C. Norton

Inventors,
Walter Peck
By J. H. Norton

UNITED STATES PATENT OFFICE.

WALTER PECK, OF ROCKFORD, ILLINOIS.

IMPROVEMENT IN WINDMILLS.

Specification forming part of Letters Patent No. 28,770, dated June 19, 1860.

To all whom it may concern:

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

My invention relates to certain improvements of construction in windmills, and has for its objects to render the apparatus more simple and durable and at the same time cheap, and also to economically and perfectly govern the speed of the mill; and to these ends my invention consists in a novel method of constructing and combining the main frame of the machine with the pillar or sustaining-column, as will be hereinafter fully described; and my invention consists in a certain novel combination of parts constituting the mechanism through which the effect of the governor is conveyed to the wheel; and my invention further consists in the employment, in combination with the mill, of an atmospheric governor, as will be hereinafter fully explained; and my invention consists, finally, in forming in the main vertical driving-pitman a universal coupling-joint, whereby the main driving-shaft and frame are capable of rotating in a horizontal plane, while the vertical driving-pitman is coupled to move up and down without turning, as will be fully explained hereinafter.

To enable those skilled to make and use my invention, I will proceed to describe the same, referring by letters to the accompanying drawings, forming part of this specification, and in which—

Figure 1 represents an isometrical perspective view of my improved windmill. Fig. 2 represents a side elevation of the same, and Fig. 3 represents a detail sectional view which will be presently particularly explained.

In the different views the same letters indicate the same parts of the apparatus.

A is the pillar or sustaining-column of the mill.

B is the wheel, which is constructed pretty much in the known manner and is properly mounted on the horizontal driving-shaft C. Said shaft C is hung in suitable bearings or

boxes in stands *a a'*, formed in the upper beam D, and is formed with a hat-crank at *b*.

The hub of wheel B is keyed onto shaft C, so as to bring said wheel as close as practical to the stand *a'*, in order that there may be but little overhanging weight, and the adjusting collar or spider E is arranged on the outer end of shaft C, and is connected by coupling-links 1 2 3, &c, to the vanes *c* of the wheel, which vanes are hung to oscillate on shafts *d* in the usual manner.

The spider E, which by its motion on shaft C adjusts the vanes *c*, is continually pressed toward the wheel B by a spiral spring *e* on the outer end of shaft C, or, what would be its equivalent, by weight on block N, and said spider is moved in the opposite direction by the upper end of regulating-lever F, as will be presently fully described.

G is the lower beam of the main frame, and it is firmly connected to the upper beam D by means of braces or vertical beams *f g h*. The tail H is connected to the upper and lower beams D and G, as illustrated, by means of bars *i i'*. On the upper end of arm F is bolted or otherwise secured a bifurcated slipper-piece *k*, which works in the groove *l* of spider E and moves it when the arm F vibrates. Said arm is hung on a pivot or fulcrum at *n*, formed in a stand *m*, which is hung on the upper end of the bar *o*. To the lower end of arm F is connected one end of a pitman L, the other end of which is pivoted to a sliding shoe-piece N, arranged to slide up and down on a vertical rod P, extending downward from the lower beam G. This beam, it will be seen, is extended forward at G² to accommodate the bar O and arm P. The shoe N is raised by the annular collar-piece R, which is arranged around the pillar A so as to slide freely up and down, and is elevated by the atmospheric regulator or governor S, as will be presently explained.

q is the main driving-pitman, which is connected at its upper end to the crank *b* by a suitable box-bearing *r* and at its lower end may be coupled to any mechanism which it is desired should be driven. The pitman *q*, instead of being made in one piece, is made in two parts, as illustrated at Fig. 3 of the drawings, with a ball-joint *t* connecting the two parts together. By this method of con-

structing the pitman, as shown, the whole upper portion of the apparatus can turn freely with the upper end of pitman *q* and vibrate with hat-crank *b*, while its lower end is connected to machinery in such manner as not to be capable of turning.

The lower beam *G* of the main frame rests on a shoulder of the pillar *A*, on which shoulder it turns and may be arranged therewith with friction-rolls, if deemed expedient.

The atmospheric governor *S* consists of a simple construction of air-pump, the piston of which is worked by an arm from it, being connected to the lower end of pitman *q*, as seen at Fig. 2. The air pumped is discharged at *u* through an orifice, which can be increased or diminished by turning a cock, while in the upper end of the barrel of the pump there is arranged a float-piston *v*, which is kept down by the collar *R*.

The operation of my improved mill is as follows, viz: The rotating main frame being adjusted to bring the wheel *B* to the wind and the vanes *c* properly set, the wheel *B* rotates by the action of the wind on the same principle as those well known, and the shaft *C*, rotating in its bearings, causes crank *b* to reciprocate the pitman *q*, which may be made to drive a pump or other machinery when the wheel is started and running. The cock at *u* is turned until the escape of air is such that a pressure will be exerted on the piston *v*, which will bear such a proportion to the counteracting pressure of spring *e* as to cause the spider *E* to be held at such a point on shaft *C* (through the medium of the arm *F*, pitman *L*, shoe *N*, collar *R*, and slipper *K*, acted on by pump *S* and spring *e*) as to cause the vanes *c* to be held at such an angle on their shafts *D* as will insure the proper velocity of the wheel. If the wheel begins to run too fast, the pump *S* will not be able to discharge, the air through orifice *u* will raise float *r*, which will operate on collar *R*, and the latter, acting through shoe *N*, pitman *L*, arm *F*, and slipper *k* on spider *E*, will change the vanes *c* to receive less effect of the wind,

and thus check the wheel, when the motion of the pump slackens the pressure of spring *e*, and forces the air out and the spider back, so as to turn the vanes *c* in the opposite direction, and thus the apparatus automatically regulates its speed or velocity by means of the air-pump *S*, connected to the main driving-pitman and operating in conjunction with the other portion of the mechanism, as before described.

It will be seen that by the construction of the main frame-work of the machine (which is supported and turns on the pillar *A*) in the manner specified, with the upper and lower beams *D* and *G* of the shape shown and connected together by braces *f g h*, the said main frame is rendered exceedingly light, durable, and the whole apparatus is properly balanced around the pillar *A*, which is a great desideratum, and it will also be understood that by the employment of a simple tube-pump *S* in combination with the other mechanism, as specified, the velocity of the mill is perfectly regulated and governed. By the formation of the universal joint in the main pitman or rod *q* the mill apparatus and mechanism connected to upper end of said pitman can freely rotate in a horizontal plane, while the lower end of said pitman does not turn.

Having described the construction of my improved mill, what I claim therein as new, and desire to secure by Letters Patent, is—

1. The combination of shoe *N*, pitman *L*, arm *F*, spider *E*, and spring *e* or its equivalent, the whole arranged and operating as described, for the purpose set forth.

2. In connection with the above-claimed combination of devices, the employment of an atmospheric governor *S*, substantially as and for the purpose described.

In testimony whereof I have hereunto set my hand this 27th day of April, A. D. 1860.

WALTER PECK.

Witnesses:

J. N. MCINTIRE,
WM. C. MCINTIRE.