

(No Model.)

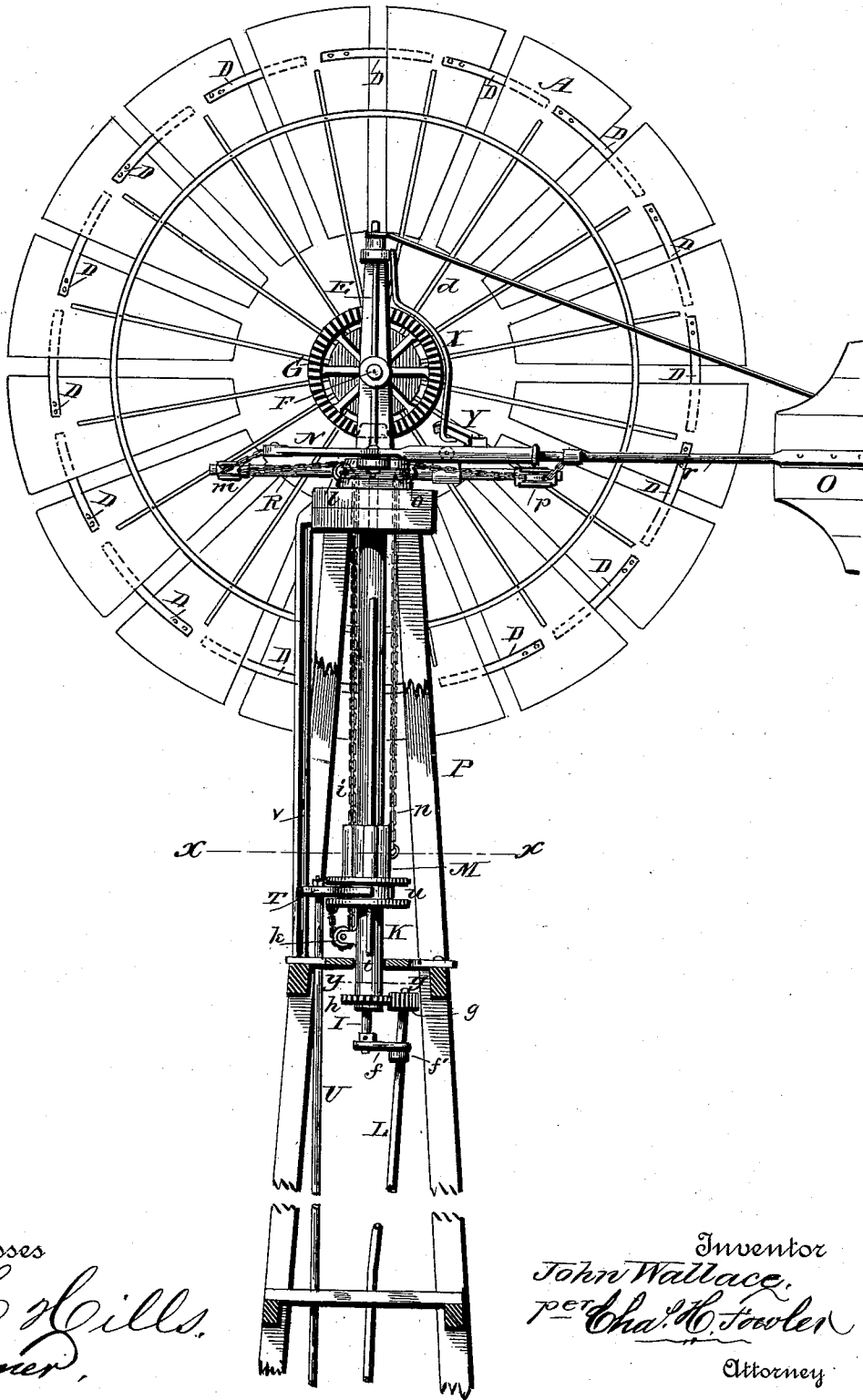
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J. WALLACE.
WINDMILL.

No. 506,804.

Patented Oct. 17, 1893.

~~Fig. 1.~~ **Fig. 1.**



Witnesses
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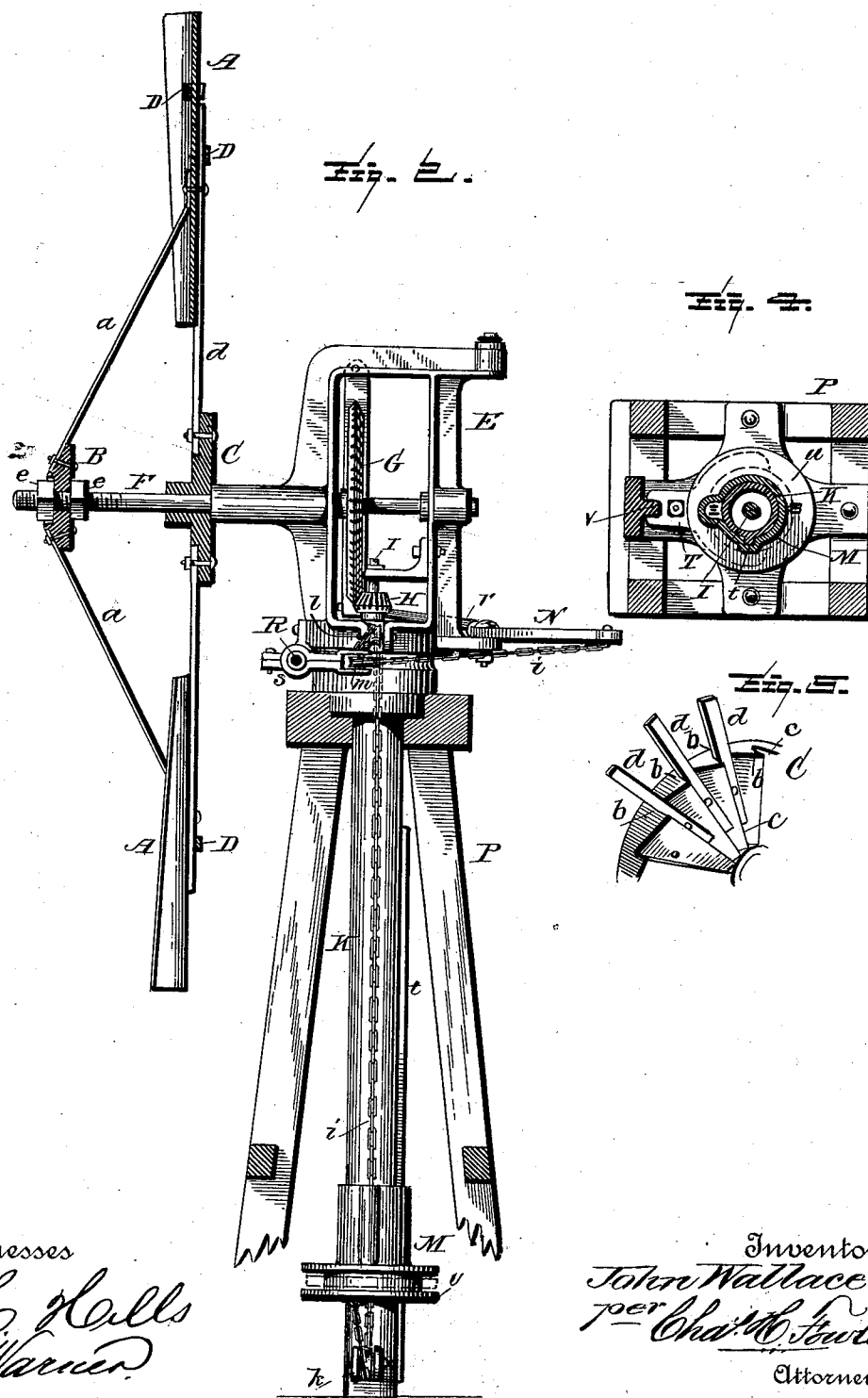
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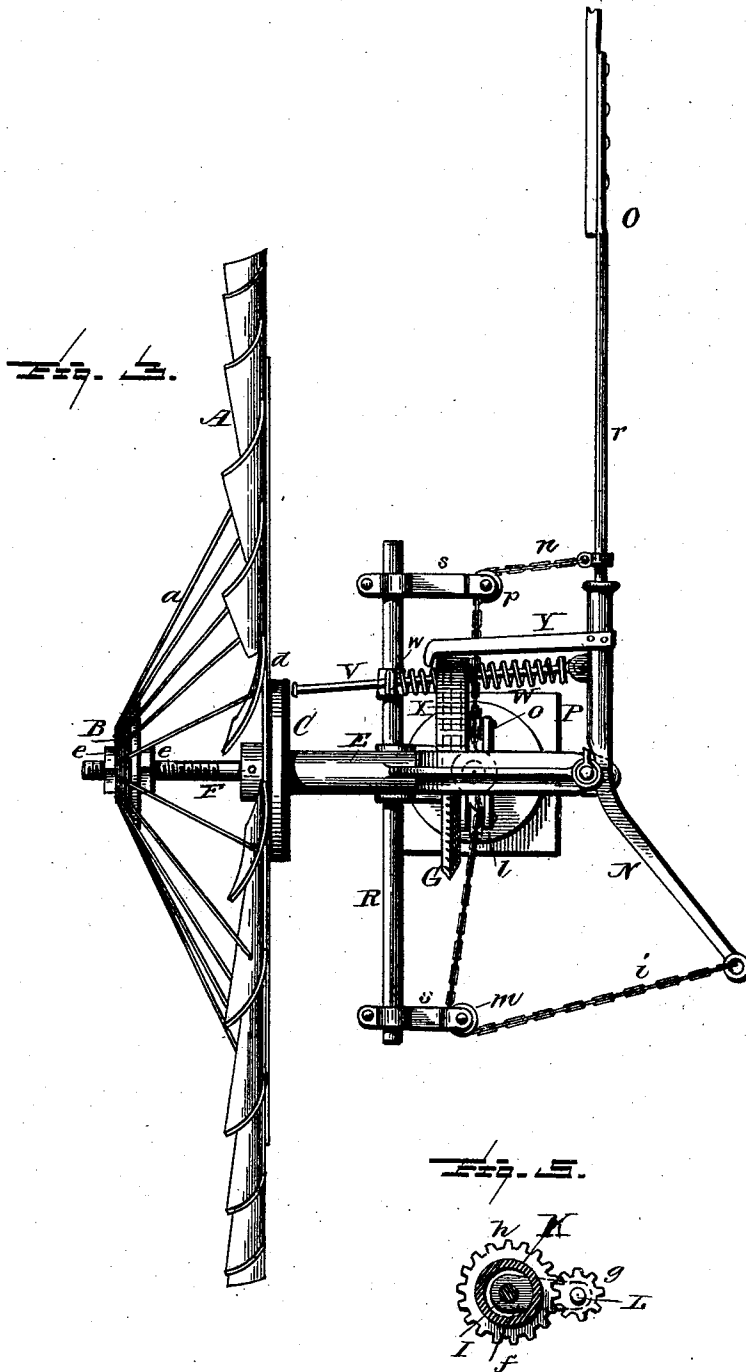
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UNITED STATES PATENT OFFICE.

JOHN WALLACE, OF UNION, ILLINOIS.

WINDMILL.

SPECIFICATION forming part of Letters Patent No. 506,804, dated October 17, 1893.

Application filed January 31, 1893. Serial No. 460,212. (No model.)

To all whom it may concern:

Be it known that I, JOHN WALLACE, a citizen of the United States, residing at Union, in the county of McHenry and State of Illinois, have invented certain new and useful Improvements in Windmills; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters of reference marked thereon.

The present invention has for its object to provide a wind-mill that will be simple in construction, possess the required strength and durability, and be effective and practical in its operation as a power to run a pump, or for other purposes to which the mill may be applied, which several objects I attain by the construction substantially as shown in the drawings and hereinafter described and claimed.

Figure 1 of the drawings represents a side elevation of my improved wind-mill. Fig. 2 represents an elevation thereof partly in section; Fig. 3, a top plan view of the wind mill; Fig. 4, a horizontal section taken on line *x x* of Fig. 1; Fig. 5, a detail perspective view of one of the heads showing the bearing shoulders for the stems and braces of the sails, said view being taken on line *y y* of Fig. 1.

The wheel of the wind-mill is composed of a plurality of sails A, each of which has suitably connected to it one end of a brace *a*, the lower or opposite end of the brace being attached to a head B which is provided with bearing shoulders *b* and seats *c* to form a more firm and rigid connection between the head and braces. The stems *d* of the sails are connected at their free ends to a head C which is similar in construction to the head B, that is to say, it is provided with bearing shoulders and seats.

The several sails A are connected together by braces D, one end of each brace being attached to the outer side of the sail and the opposite end of the brace to the inner side of the sail next to it, thus forming a perfect brace throughout the several sails and rendering them more serviceable. The manner of connecting the opposite ends of the braces to the outer and inner sides of the sails respectively, secures increased strength and durability.

A suitable bracket E supports the operat-

ing parts of the wind-mill, and forms a bearing for the shaft F to which the wheel is connected through the medium of the heads B C. The shaft F is screw threaded at its end to receive jam-nuts *e* for holding thereon the head and enabling it to be adjusted on the shaft as circumstances require. Upon the shaft F is keyed a suitable bevel gear wheel G with which engages a pinion H upon the upper end of a vertical rod I, said rod extending down through a tube K and has upon its lower end a yoke *f* to form a bearing for the pump or other rod L. The rod L has upon its upper end a gear wheel or pinion *g* which meshes with the teeth of a gear wheel *h* upon the lower end of the tube K. The gear wheel *h* and pinion *g* form a guide for the rod L as it is being carried around by the rod I and as the rod loosely passes through the collar *f'* upon the end of the yoke *f*, said rod L when moving around the gear wheel will also rotate upon its axis through the medium of the gear wheel and pinion. A compound motion will therefore be imparted to the rod L which may be utilized with any pitman device or suitable arrangement of gearing. Should the rotation of the rod L upon its axis not be required, the pinion upon the end thereof may be removed.

A sleeve M encircles the tube K and has connected to it, one end of a chain *i*, said chain passing over and against a pulley *k* upon the tube and then upward through the sleeve and over a pulley *l* and thence around a pulley *m*, after which the end of the chain is attached to the end of an arm N to which the vane O is connected. The sleeve M has connected to it one end of a second chain *n* which chain extends up through the tower P and over a pulley *o* and a pulley *p* and has its end connected to the stem *r* of the vane. The pulleys *l o* are suitably connected to the bracket E and the pulleys *m p* are connected to arms *s* upon the ends of the rod R, said rod being suitably attached to the bracket.

The tube K has a longitudinal flange *t* to serve as a guide and prevent the sleeve M turning thereon, said sleeve having a flanged collar *u* to receive a clutch T upon the upper end of a rod U, the clutch working in a guide *v* when moving up or down and is intended to be operated from the ground. A rod V has its end pivoted or hinged to the arm N and

its opposite end passes through a guide *w* upon the rod *R*, and a coiled spring *W* encircles the rod *V* between the guide and its point of attachment with the arm, as shown in Fig. 3.

5 The rod *V* sets the vane of the wind-mill at any desired angle, and the spring is designed to hold chains taut when the mill is not in operation.

The bracket *E* is provided with a suitable
10 brake *X* which is held against the rim of the gear wheel *G* by means of a brake-lever *Y* suitably connected to the arm *N*, as shown in Fig. 3. The gear wheel *G* is adjustably connected on the shaft by means of a set screw or any
15 other preferred and well known means may be employed, and the bearing for the end of the rod *I* may be also rendered adjustable as circumstances would require.

There are many changes and modifications
20 in the several details of construction that could be made without departing from the principle of my invention, and therefore I reserve the right to make any such changes in the invention as would be considered as coming within ordinary mechanical skill.

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

1. In a wind-mill, the vertical tube *K* connecting with the pump or other rod through 30 the medium of suitable gearing, a rod *I* extending through the tube and connected with the pump rod, and to the wind-wheel by suitable gearing, a longitudinal guide flange *t* upon the tube, in combination with the sleeve 35 *M* having flanged collar *u*, the rod *U* and clutch *T* for operating the sleeve, and suitable chains and pulleys to form a connection between the sleeve and vane of the wind-mill, substantially as and for the purpose set forth. 40

2. In a wind-mill, the vertical tube *K*, the sleeve *M* connecting with the vane through the medium of suitable chains and pulleys, and the rods *I* *U* connected together, and the former connected to the tube by suitable gearing, in combination with the pivoted or hinged 45 rod *v* and the spring *W*, and the rod *R* having arms *s* and pulleys connected thereto, substantially as and for the purpose set forth.

In testimony that I claim the above I have 50 hereunto subscribed my name in the presence of two witnesses.

JOHN WALLACE.

Witnesses:

THOMAS J. WALLACE,
JACOB DELLENBACK.