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PATENT SPECIFICATION

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Complete Specification

FOR

LETTERS PATENT.

BALDWIN & RAYWARD,
PATENT ATTORNEYS,
WELLINGTON, ETC.

No.

Date

"AN IMPROVED WINDMILL"

I, FRANCIS THOMAS FINLAY EVANS, of Chancery Street, Auckland, in the Provincial District of Auckland, in the Dominion of New Zealand, Blacksmith,

do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:--

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This invention relates to that class of windmills where reciprocating motion is required for pumping water and other purposes.

By my invention the employment of geared wheels is obviated thereby rendering the construction simpler while the efficiency of the windmill is increased.

The invention consists in transforming the rotary motion of the windmill sails into reciprocating motion by means of a crank connected to one end of a lever by a rod, the other end of the lever being connected by a link to the pump or other rod to which it is required to give reciprocating motion. The upward movement of the pump or other rod is assisted by a spring in compression beneath a nut or the like upon the rod.

The vane for bringing the sails into the wind is fixed to a bracket operated by a weighted lever fulcrumed upon a bracket.

For the purpose of a detailed description the invention will now be described as applied for pumping water or the like, and for this purpose the accompanying drawing will be referred to.

Figure 1, is a front elevation partly in section, and with the sails removed,
Figure 2, is a plan, and

Figure 3, a side elevation.

A frame 1 has an integral sleeve 2 resting upon a socket 3 integral with a cap 4 fixed to a post or support 5. A pipe 6, screwed into the sleeve 2, passes through the socket 3. The frame 1 is thus free to rotate upon the said socket 3.

Bearings 7, integral with the frame 1 and having caps 8, carry/a crank shaft 9 to which the sails 10 are fixed. The sails may be of any ordinary construction and I do not bind myself to any particular shape or design of sail. The crank 11 of the shaft 9 is connected to the long arm

43

of a lever 12 by a rod 13. The lever 12 is fixed to a shaft 14 carried in bearings 15 provided with caps 16. The short arm of the lever 12 is connected to the pump rod 17 by a linl 19. The pump rod passes through a grease cup 20 integral with the top of the frame 1, and having a cap 21 held in position by dowels 22. A nut 23 screwed upon the end of the rod 17 rests upon a spring 24, which rests upon the botton of the cup 20. Instead of a coil spring as shown in the drawings any other suitable kind of spring, such as a "C" shaped leaf spring, may be employed.

The vane 25 is fixed to a bracket 26 mounted upon pintles 27 projecting from the frame 1, and the bracket is limited in its movement in one direction by a finger 28, which is adapted to contact with the frame 1. A lever 29 has an arm provided with a weight 30 adjustable thereon by a screw 31, and the said lever is fulcrummed by a bolt or pin 32 to a bracket 33 fixed to the frame 1. The other arm of the lever 29 is connected by a link 34 to the bracket 26.

A controlling cord 35, passing through the pipe 6 and sleeve 2, and reeved around guide pulleys 36 and 37, is attached to the bracket 26.

The bearings 7 and 15 are of the lubricating ring feed type, and grease cups are provided where required an example 38 of which is shown upon the lever 12.

As shown in the drawings the cord 35 has been released and the weight 30 has swung the vane 25 from the position shown by dotted lines in Figure 2 to the pbsition shown by full lines, the movement of the vane having been arrested by contact of the finger 28 against the frame 1. The pressure of the wind on the vane swings the sails into the wind which causes the sails and their shaft 9 to rotate. The crank 11, through the medium of

the rod 13, reciprocates the lever 12 and the pump rod 17 is reciprocated through the medium of the link 19. The spring 24 is compressed on the down stroke of the rod 17, and on the upstroke of the rod the expansion of the spring gives an upward lift and assists in overcoming the inertia of the rods and levers.

36961

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:-

1. In a windmill, sails fixed to a shaft having a crank connected to one end of a lever by a rod, the other end of the lever being connected to a pump rod by a link, substantially as set forth.

2. In a windmill, sails fixed to a shaft having a crank connected to one end of a lever by a rod, the other end of the lever being connected to a pump rod by a link, the inertia of the rods and levers being overcome by a spring on the upstroke of the pump rod, substantially as set forth.

3. In a windmill, a spring compressed upon the downstroke of the pump rod and expanding on the upstroke thereof, whereby the inertia of the pump rods and associated parts is overcome, substantially as set forth.

4. In a windmill, a frame having a sleeve resting on a socket secured to a support, a pipe passing through the socket and screwed into the sleeve, a pump rod passing through the pipe sleeve and frame, a nut screwed upon the rod, a spring between the nut the frame, and a cup surrounding the spring and means for reciprocating the pump rod, substantially as set forth.

5. The combination and arrangement of parts, comprising the improved windmill, substantially as and for the purposes described and as illustrated in the accompanying drawings.

DATED at Wellington this 23rd day of November 1915.

Baldwin & Raywards
per JAR

Attorneys for the Applicant.

True Copy:-

Baldwin & Raywards
per JAR

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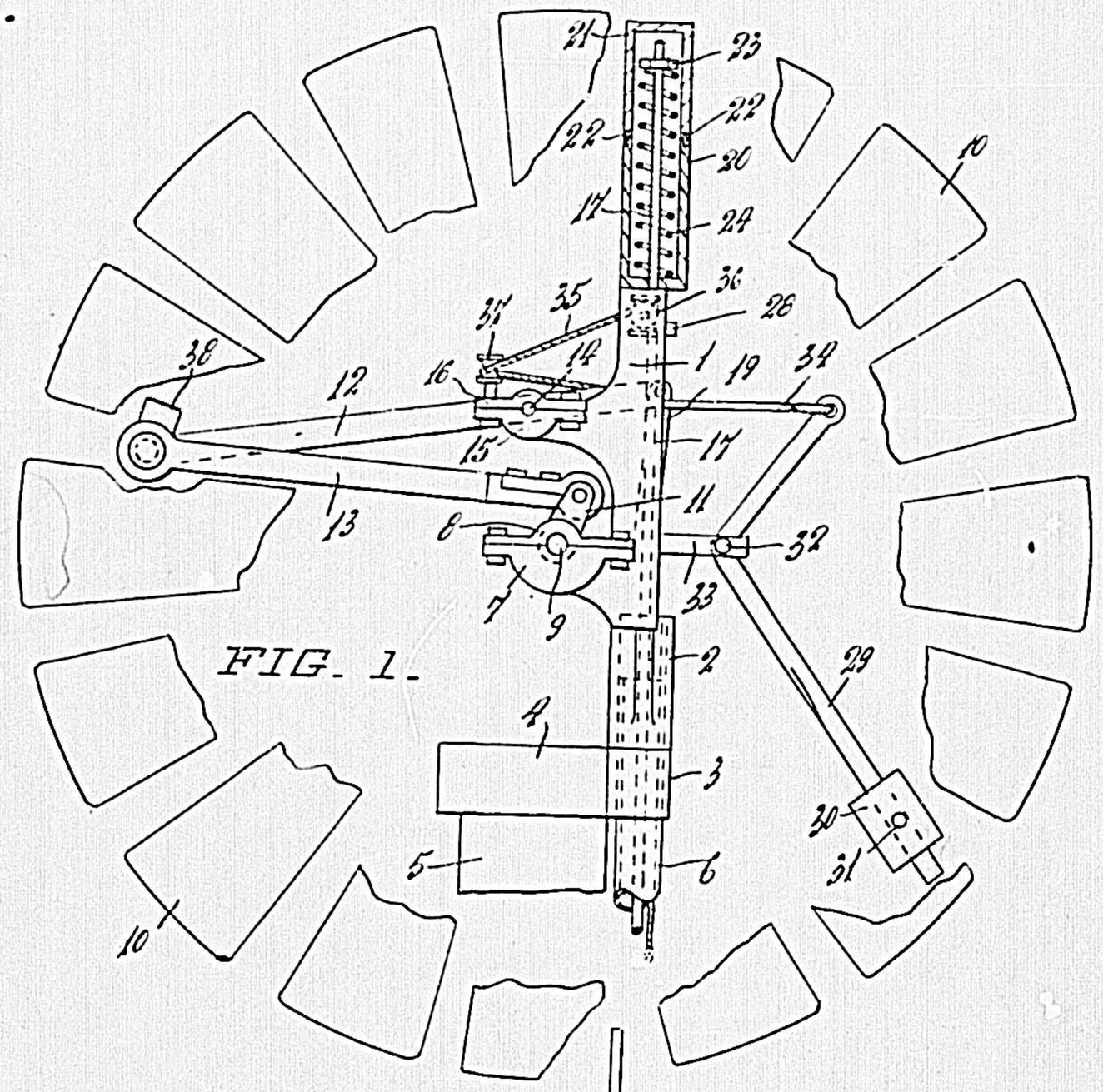


FIG. 1.

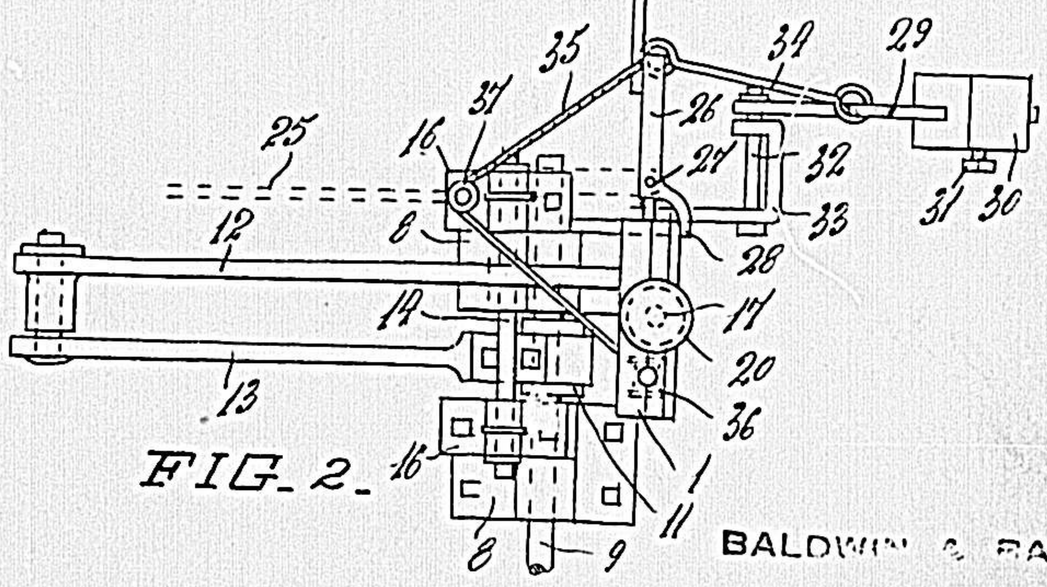


FIG. 2.

BALDWIN & BAYWARD.

PER J.H.K.

Attorneys for the Applicant.

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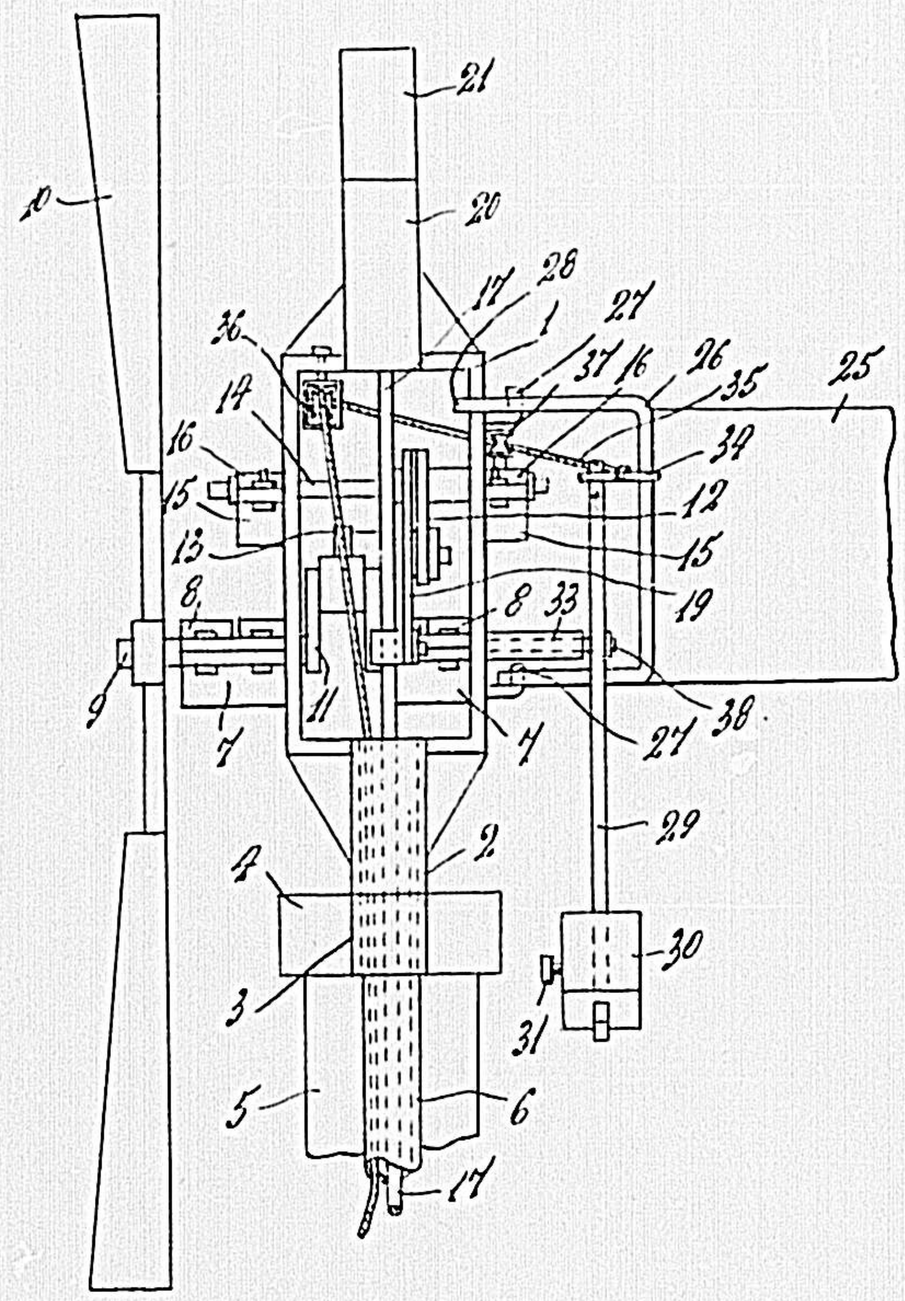


FIG. 3.

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PER J.H.K.

Attorneys for the Applicant.

END