PATENTS.

Applicant: J. G. Oates.

Invention: Windmill

No. 1995.

Date 22. 10. 1895

MEMORANDA.

Application recd. with Provl spcf. and fee (10s.) 22.10.95

Complete Specification recd Unsigned. J.G.O. 1.9.96

H Hughes 82 4/9/96

accepted 30.10.95

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accepted

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Memo. and form posted to Mr Hughes 21.11.96

Issue applied for and fee (£2) paid 23.1.97

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to J. Hughes 5/2/97

Advice to Govr ~~with~~ herein

Reminder sent to agt. 5.9.99

Fee (£6) paid 7.10.99

Reminder sent to Mr Hughes 4.9.02

Fee (£10) paid 16.9.02

HENRY HUGHES,
PGR. PERM. CERTIFIED INST. OF P.A.
FELL. AUST. INST. P.A.
LAMBTON QUAY, WELLINGTON, N.Z.

1995

NEW ZEALAND.

APPLICATION FOR PATENT.

(a) "I" or "We" followed by name in full, address and calling of applicant or applicants.

(a) I, John George Oates, of 42 Lambton Quay, in the City of Wellington, in the Colony of New Zealand, Farmer, ---------- of

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declare that I am in possession of an invention

(b) Insert title of invention.

for (b) ''An improved windmill'' ----------

(c) "I am" or "We are," but insert inventor's name if applicant is the assignee.

that (c) I am the true and first inventor thereof; and that the same is not in use by any other person or persons to the best of my knowledge and belief, and I pray that a Patent may be granted to me for the said invention, as described in the specification herewith.

Dated this 22nd day of October, 1895.

(d) Signature of applicant or applicants.

(d) John George Oates

Accepted at 9 p.m. 22nd day of October 1895
C.P. Skerman
Registrar of Patents, Designs, &c.

(e) Signature, address, and occupation of witness.

Witness to Signature (e) Henry Hughes
Patent Agent
42 Lambton Quay
Wellington N.Z.

COMPLETE SPECIFICATION.
Left 14th April 1896
Accepted 1st Sept. 1896
F. Reginald
Registrar of Patents, &c.

4915

HENRY HUGHES,
FCP. MEM. CHARTERED INST. OF P.A.
FEL. AUST. INST. P.A.
LAMBTON QUAY, WELLINGTON, N.Z.

AUTHORIZATION.

I, John George Oates, of 42 Lambton Quay, Wellington, in the Colony of New Zealand, Farmer ---------- of ----------

the undersigned applicant for Letters Patent for "An improved windmill" ----------

desire that all official communications relating to the same may be addressed to William Ernest Hughes, of 54 Lambton Quay, Wellington, Patent Agent ---------- and that he may be recognised as my authorised Agent in all proceedings incident thereto.

Dated the 2nd day of July, 1896.

John George Oates

Witness: E.S. Baldwin
Patent Agent
Wellington

To the Registrar of Patents,
Wellington,
New Zealand.

HENRY HUGHES,
PATENT AGENT, CHARTERED INST. OF P.A.
FELL. AUST. INST. P.A.
LAMBTON QUAY, WELLINGTON, N.Z.

1995

No 7995.
Dated 22nd October, 1895.

COMPLETE SPECIFICATION.

"An improved windmill"

I, John George Oates, of 42 Lambton Quay, Wellington, in the Colony of New Zealand, Farmer, do hereby declare the nature of my invention for "An improved windmill" and in what manner the same is to be performed to be particularly described and ascertained in and by the following statement,-

My invention relates to an improved windmill and has more especial reference to small windmills which are extensively used for pumping and other purposes. The usual construction of such mills is well known to consist of a horizontal shaft working in bearings and having at its outer end arms carrying blades or sails which revolve by the action of the wind, the said shaft being fitted with a crank or pulley to drive a pump or other light machine. The bearings in which the shaft revolves are formed upon a frame which frame is fitted with a projecting vane or other suitable apparatus which has the effect of always keeping the working vanes opposite and at right angles to the direction of the wind.

It is evident that by these arrangements the windmill

will be driven at different speeds according to the strength of the wind and the work to be done, and it is found in practice that when the current of wind is strong the machinery is often driven at such a speed and with such force as to carry away the sails or otherwise disarrange the machinery.

Now, it is to obviate this difficulty that the improvements hereinafter mentioned have been invented and which give a means of perfectly governing the speed of windmills. In carrying my invention into effect I prefer to fix the mill sails firmly on to a hollow axle which hollow axle works in ordinary bearings fixed on a revolving frame or table in the usual manner in order to face the wind in whatever direction it may blow. The inside of this hollow spindle I prefer to make in the form of a pipe or tube and into this tube I fit a sliding shaft which shaft is longer than the said tube and projects beyond each end. The end projecting in front of the vanes I prefer to be square or in any suitable form so that it will be able to slide freely within the tube but will be certain to revolve with it. On this front end of the sliding shaft I fix a boss which carries rods which project backwards diagonally and are of such a number that there is one rod to each vane of the mill. The vanes are hinged to the arms which support them and the diagonal rods are hinged to the boss and the vanes so as to allow of the vanes having either their whole surface exposed to the action of the wind or to be turned backward to present a smaller surface when exposed to a stronger current.

It will be evident that if this governing action of the vanes can be made automatic so as to be actuated by the current of the wind the machinery will be freed from the usual shocks which take place from sudden gusts.

To accomplish this object I fix to the inner end of the beforementioned sliding shaft a connecting rod fitted at one end with a bearing in which the end of the sliding rod revolves and at its other end a coupling by which it is attached to an upright arm carrying a suitable vane. This vane is so arranged that it always faces the wind and the arm upon which it is fixed is so regulated by means of a lever or counterbalance weight or both that it remains stationary with the normal state of the wind, but should the current of wind increase more than is required the said upright vane is blown backwards carrying with it the coupling and the sliding shaft thus acting upon the working vanes of the windmill through the beforementioned diagonal rods, and pressing them back so as to reduce the surface exposed to the wind, and oppose a more acute angle to the action of the same.

Behind the said upright arm of the regulating vane I prefer to have a spring buffer to prevent too great a shock arising from sudden gusts, and I so arrange the details of my apparatus that the whole may be readily altered and set so as to give less or more power as required.

In order that my invention may be most easily understood by one skilled in the art to which it appertains I will

now proceed to describe the same in detail and in doing so shall refer to the accompanying drawing, whereon similar letter of reference indicate corresponding parts.

Figure 1 is a side elevation of my windmill.

Figure 2 is a front view of the same.

Figure 3 is a view of alternative balancing mechanism.

Referring to the views, the sails /a/ are fixed firmly to the hollow axle /b/ which works in ordinary bearings /b'/ fixed on a revolving frame or table /c/ having vane /c'/ of in the usual manner. Into hollow axle /b/ I fit a sliding shaft /d/ which is longer than the said axle and projects beyond each end. The end projecting in front of the sails /a/ I prefer to be square in section, and on this front end of the sliding shaft I fix a boss /d'/ which carries rods /d2/ which project backwards and are equal in number to the sails. The said sails /a/ are hinged at /a'/ to the arm /a2/ which support them and rods /d2/ are hinged to boss /d'/ and sails /a/ so as to allow the sails to yield and turn backward and offer less resistance when exposed to a stronger current.

This movement of the sails is made automatic by fixing to the inner end of the sliding shaft /d/ a coupling /e/ fitted at one end to crosshead /e'/ in which the end of sliding shaft /d/ revolves and at its other end is coupled to upright arm /f/ by means of pin /e2/, said arm /f/ being pivotted at /f2/ to frame /c/ and carrying vane /f'/. This vane is kept up to its work by weight /g/ and cord /g'/ passing over pulley /g2/, which is placed out of the centre

to make room for eccentric /j/ or other mechanism to work, and in the normal state of the wind the said vane will remain stationary, but with increased force of wind it will be blown backwards taking with it coupling /e/ and sliding shaft /d/ thus acting upon the sails /a/ through rods /d2/ and pressing them back so as to reduce the angle at which the wind strikes them. When the weight /g/ has been raised a certain distance, the adjusting stop /g'/ will pick up a second weight /g3/, and by arranging the height and varying the number and size of these weights I can correspondingly increase or decrease the resistance of vane /f'/ so as to obtain more or less power from the windmill as desired. If necessary, weights /g/ & /g3/ may be made to operate outside turntable /c/ as shewn by dotted lines.

Referring to Figure 3,an alternate balancing mechanism is shewn when the vane /f'/ upon arm /f/ is kept up to its work by weight /g/ suspended upon a continuation of said arm /f/. Counterbalance weights /g4/ may be of any desired size so as to counteract weight /g/ or entirely overcome it when it is desired to stop the windmill from working.

I prefer to use a spring buffer /h/ to prevent shock arising from the action of sudden gusts upon vane /f'/, and to keep the said vane up to its work against the wind.

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, in combination, sails hinged to

their supporting arms and connected to a shaft capable of sliding within a hollow axle and operated by a vane and connections, substantially as and for the purposes set forth herein.

2. In a windmill, in combination, sails hinged to their supporting arms and connected to a shaft capable of sliding within a hollow axle and operated by a vane and regulating weights, substantially as and for the purposes set forth herein.

3. In a windmill, in combination, sails hinged to their supporting arms and connected to a shaft capable of sliding within a hollow axle and operated by a vane and regulating spring, substantially as and for the purposes set forth herein.

4. A windmill, constructed, arranged and operating, substantially as and for the purposes hereinbefore described and illustrated on the accompanying drawing.

Dated this17th day of July, 1896.

W. E. Hughes

Agent for the Applicant.

HENRY HUGHES,
FCR. MEM. CHARTERED INST. OF P.A.
FEL. AUST. INST. P.A.
LAMBTON QUAY, WELLINGTON, N.Z.

STATEMENT OF ADDRESS AND APPOINTMENT OF AGENT.

I, John George Oates, of 42 Lambton Quay, in the City of Wellington, in the Colony of New Zealand, Farmer, do hereby nominate, constitute and appoint Henry Hughes, Fellow of the Aust. Inst. of Patent Agents, 42 Lambton Quay, Wellington my Agent to apply for and obtain Letters Patent in the Colony of New Zealand in my favor for my invention entitled "An improved windmill" and for that purpose to sign my name, and as my act and deed to seal and deliver all documents that my said Agent may think necessary or desirable, and I further empower my said Agent to alter and amend such documents, whether originally signed by me or otherwise, in any manner which may be necessary and I authorise and request you to send all notices, requisitions, and communications in connection with my said application to him at his address, as above given.

In witness whereof I have hereunto affixed my Signature this 22nd day of October, A.D. 189 5.

John George Oates

Witness

To the Registrar of Patents, &c.,
Patent Office, Wellington,
New Zealand.

HENRY HUGHES,
PATENT AGENT, CONSULTING ENGINEER, ETC.
LAMBTON QUAY, WELLINGTON, N.Z.

1995

PROVISIONAL SPECIFICATION.

"An improved windmill"

I, John George Oates, of 42 Lambton Quay, in the City of Wellington, in the Colony of New Zealand, Farmer, do hereby declare the nature of my invention for "An improved windmill" to be as follows,-

My invention relates to an improved windmill and has more especial reference to small windmills which are extensively used for pumping and other purposes. The usual construction of such mills is well known to consist of a horizontal shaft working in bearings and having at its outer end arms carrying blades or sails which revolve by the action of the wind, the said shaft being fitted with a crank or pulley to drive a pump or other light machine. The bearings in which the shaft revolves are formed upon a frame which frame is fitted with a projecting vane or other suitable apparatus which has the effect of always keeping the working vanes opposite and at right angles to the direction of the wind.

It is evident that by these arrangements the windmill will be driven at different speeds according to the strength of the wind and the work to be done, and it is found in

/1/

practice that when the current of wind is strong the machinery is often driven at such a speed and with such force as to carry away the sails or otherwise disarrange the machinery.

Now, it is to obviate this difficulty that the improvements hereinafter mentioned have been invented and which give a means of perfectly governing the speed of windmills. In carrying my invention into effect I prefer to fix the mill sails firmly on to a hollow axle which hollow axle works in ordinary bearings fixed on a revolving frame or table in the usual manner in order to face the wind in whatever direction it may blow. The inside of this hollow spindle I prefer to make in the form of a pipe or tube and into this tube I fit a sliding shaft which shaft is longer than the said tube and projects beyond each end. The end projecting in front of the vanes I prefer to be square or in any suitable form so that it will be able to slide freely within the tube but will be certain to revolve with it. On this front end of the sliding shaft I fix a boss which carries rods which project backwards diagonally and are of such a number that there is one rod to each vane of the mill. The vanes are hinged ~~are hinged~~ to the arms which support them and the diagonal rods are hinged to the boss and the vanes so as to allow of the vanes having either their whole surface exposed to the action of the wind or to be turned backward to present a smaller surface when exposed to a stronger current.

It will be evident that if this governing action of the

vanes can be made automatic so as to be actuated by the current of the wind the machinery will be freed from the usual shocks which take place from sudden gusts.

To accomplish this object I fix to the inner end of the beforementioned sliding shaft a connecting rod fitted at one end with a bearing in which the end of the sliding rod revolves and at its other end a coupling by which it is attached to an upright arm carrying a suitable vane. This vane is so arranged that it always faces the wind and the arm upon which it is fixed is so regulated by means of a lever or counterbalance weight or both that it remains stationary with the normal state of the wind, but should the current of wind increase more than is required the said upright vane is blown backwards carrying with it the coupling and the sliding shaft thus acting upon the working vanes of the windmill through the beforementioned diagonal rods, and pressing them back so as to reduce the surface exposed to the wind, and oppose a more acute angle to the action of the same.

Behind the said upright arm of the regulating vane I prefer to have a spring buffer to prevent too great a shock arising from sudden gusts, and I so arrange the details of my apparatus that the whole may be readily altered and set so as to give less or more power as required.

Dated this 22nd day of October, 1895.

J. Henry Doyle
Fellow Chief Asst. P.O.

Agent for the Applicant.

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