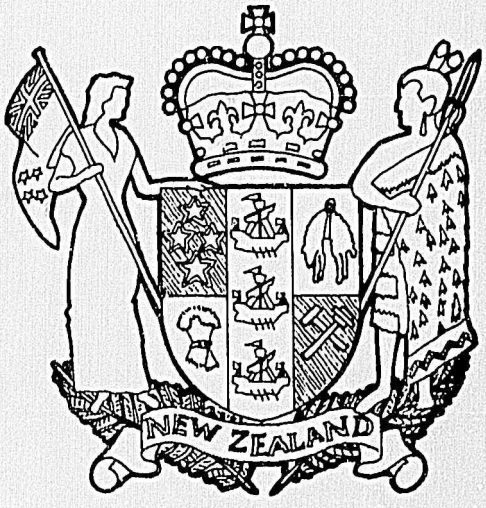


NEW ZEALAND

PATENT SPECIFICATION

26307 NEW ZEALAND. 28-7-09

THE PATENTS, DESIGNS, AND TRADE MARKS ACTS.

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TO ACCOMPANY

COMPLETE SPECIFICATION.

PATENT OFFICE 20 SEP 1910 NEW ZEALAND

No.	
Date of acceptance.	

Improvements in Windmills

I Ernest Hayes
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Otirehua - Otago
New Zealand

do hereby declare the nature of this invention for

Improvements in Windmills

and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

In the old style windmills the sails are hung on the wind shaft overhanging the turntable throwing greater part of the weight and friction on one bearing

Form 4.] NOTE.—As many pages of wide-ruled foolscap paper as may be required may be inserted between this and the page containing the claim. The writing to be one side only of the paper.

(1)

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This invention relates to windmills which works on an horizontal shaft. termed horizontal windmills and the object sought is to place the windmill as partially inside the internal turntable. the lower half of mill runs through the turntable. the upper half runs above it. however the chief feature of this invention is the new dish sail. designed specially for gripping the wind and holding it to its work. in explanation of these improvements we will refer now to

FIG-(1)- 1 is the internal turntable 2 and 3 bearings for the wind shaft. 4 and 5 are intermediate bearings to carry intermediate shaft 6 is a ring bearing which is fitted to the outside of the turntable. 7 uprights of turntable 8 cross braces 9 angle braces. this turntable may be made of any suitable material wood or iron. this model is wood bolted together at all the joints of braces and uprights. 13 is the bottom or lower end of the turntable, to which is attached the hollow gudeon plate 10. 11 is the footstep cup. 12 is the cup shoulder on which the hollow gudeon rests.

FIG-2- (1) shows the complete sail arm. 2-3-4. the sail arm brackets. 5.6.7 dish sail brackets 8.9.10 show the dish sails. 11.12.13 cross braces. the dish sails are made in one piece of sheet metal. perfectly flat at the bottom. with the sides standing at an angle of about 90 degrees. x

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X this sail is riveted to the sail bracket as shown at 14. 15. 16 - by six rivets in each sail - for large mills - and four in small mills - owing to there being less cross brace by one -
the dish sails are so constructed that they may be fitted to the sail brackets which are attached to the cross braces 11. 12. 13 - which are bolted to the arm brackets 2-3-4 - being one section of sail - any number of sections may be bolted in a windmile of this type - the number of sections of course depends wholly on the diameter of the windmile - in this particular wheel there are 12 sections of sail - 5-6-7 is the actual sail bracket which is riveted at 6 and 7 - to the cross braces 13 - this bracket is just a piece of wrought iron as shown -

In the internal turntable the sails swing round inside the two bearings at the top of the open topped turntable - this type of turntable may be located in any ordinary mile tower by adjusting a bearings on the tower itself to keep the turntable in position - I have merely shown outlines of a tower - any kind of tower made of iron - wood - stone or brick - would answer the purpose to carry the turntable

It will now be seen that this windmill hangs with the lower half inside the turntable we will now refer to - Fx 1 C (3) side elevation

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FIG 3. 1 wind wheel 2 and 3. stays - 4 stay centres 5 driving pulley or wheel. 6 wind shaft. 7 main regulating vane & main vane stay - 9 equal vane 10 turntable internal - 11 intermediate shaft. 12 bevel gear pinion driving - 13 driven bevel gear pinion - 14 pulley on intermediate shaft - 15 main regulating vane spindle - 16 outlines of tower 17 bottom of turntable 18 pulley on upright shaft. 19 foot of upright shaft - 20 worm wheel 21 worm - 23 worm spindle 24 worm hand wheel - 25 sail arm centre on wind shaft - 22 upright shaft.

FIG. 4. is a further description of dish sail - 4 and 5 show the flat bottom of sail - 1-2-3 are the sides which stand up at an angle of about 90 degrees - the sides at 2-3. stand up about a third of the width of sail - and are therefore in proportion higher at the outer and broader end of the sail - and shallower at the narrower - or inner end of sail 1-5-2.

In working this invention the power is taken off the pulley or belt pinion on the wind shaft. and transmitted by belt to the intermediate shaft.

This intermediate shaft carries a bevel gear pinion which meshes into a bevel gear pinion on the upright shaft - from this point the power is transmitted to the upright shaft - the pulley on the bottom of the upright shaft. transmits the power in any direction - when the main regulating vane is set parall to the face of the windmill. the wind cannot exert its force on the face of the wheel, which then comes to rest - set the regulator vane to an angle of

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(4)

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45° or so, and the mile will start if there be wind.

In the case of a squall the squall regulator will shift mile slightly out of wind reducing the force of the gust on the windmill.

The disk sail allows the mile to work at a very acute angle to the wind. the bottom of the back of the sail is so constructed as to slip over the wind, while the front side of the sail grips it.

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Having now particularly described and ascertained the nature of_____ said invention, and in what manner the same is to be performed,_____ declare that what I claim is,—

(1) In an improved windmills, the dish sail substantially as set forth and illustrated

(2) In combination the dish sail braces, arms and brackets composing section of improved windmills substantially and for the purpose set forth

(3) In combination the internal turntable as herein set forth and described in connection with the hollow gudeon plate and cup footstep as shown in the drawing substantially and for the purpose stated

Dated this 21 day of May, A.D. 1900.

Signed: Ernest Hayes
R Trethewa

Certified to be a true copy.

Applicant or Agent.

[5000/10/1903—8058]

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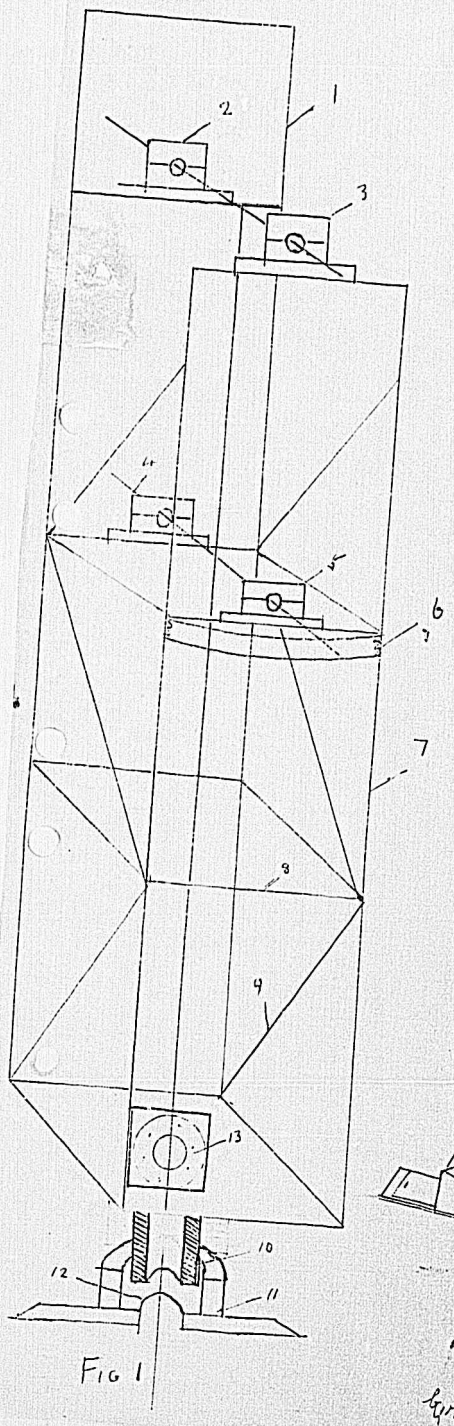
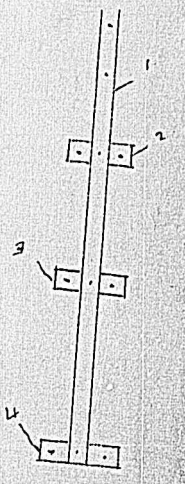


FIG 1



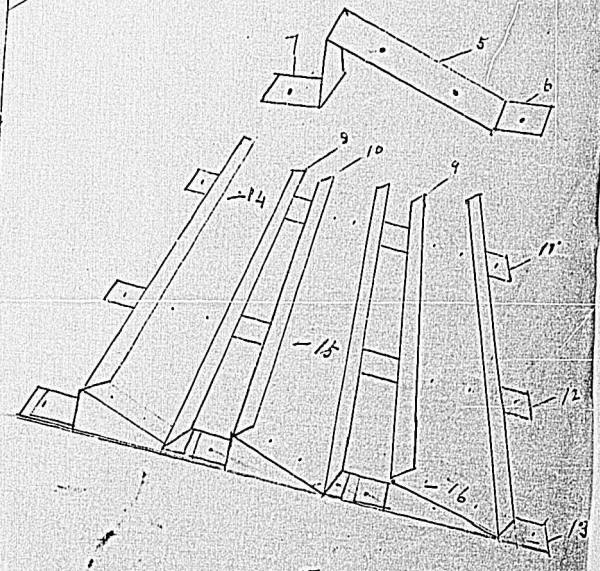


FIG 2

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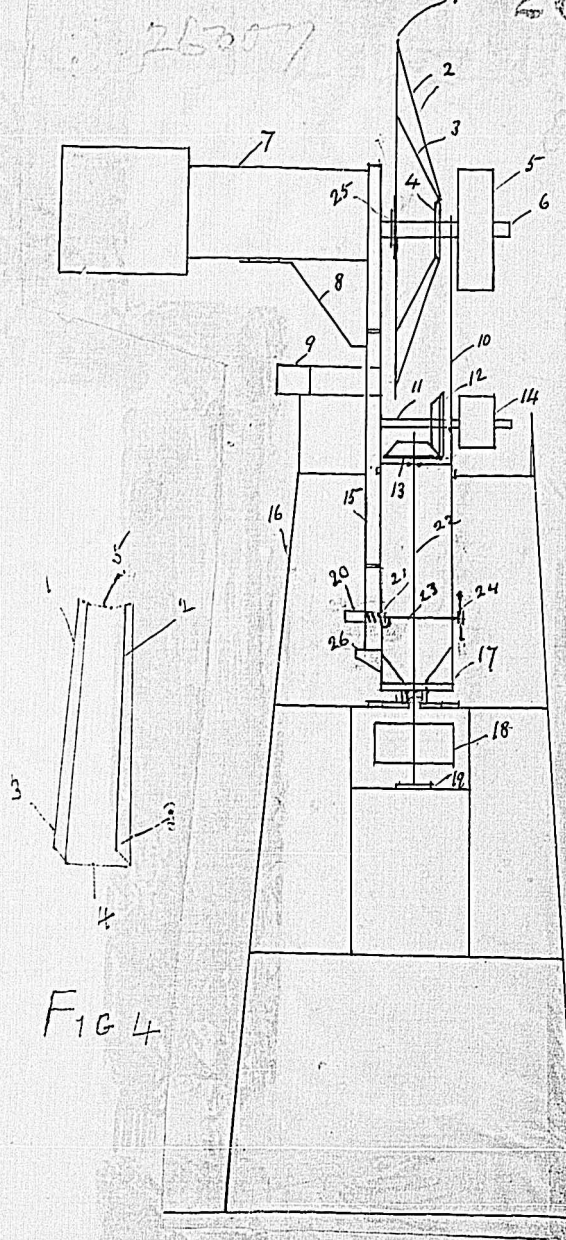


FIG 3
Side Elevation
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FIG 4

END