No. 698,409. Patented Apr. 22, 1902.

J. NEUSER.

WINDMILL.

(Application filed June 18, 1900.)

(No Model.)

Fig. 1.

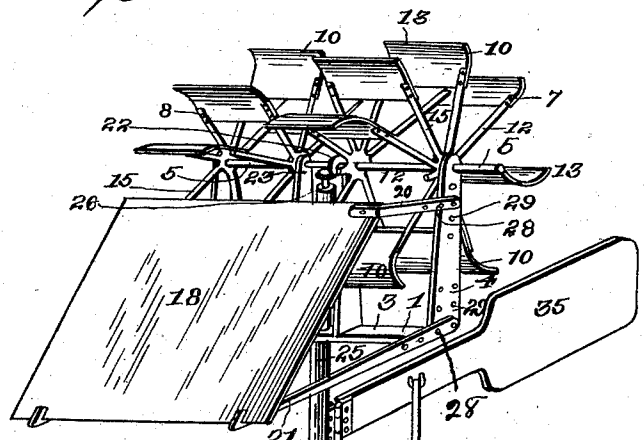


Fig. 3.

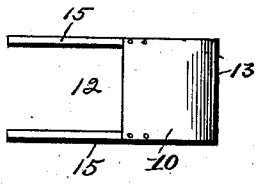


Fig. 5.

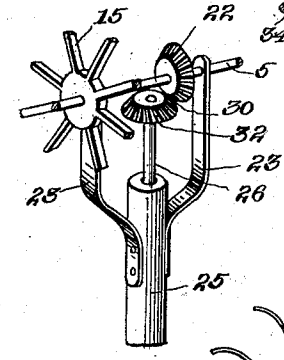


Fig. 4.

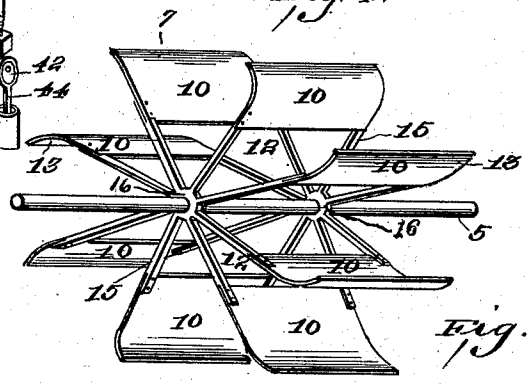
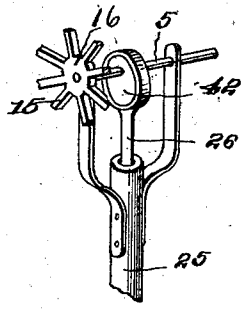


Fig. 6.



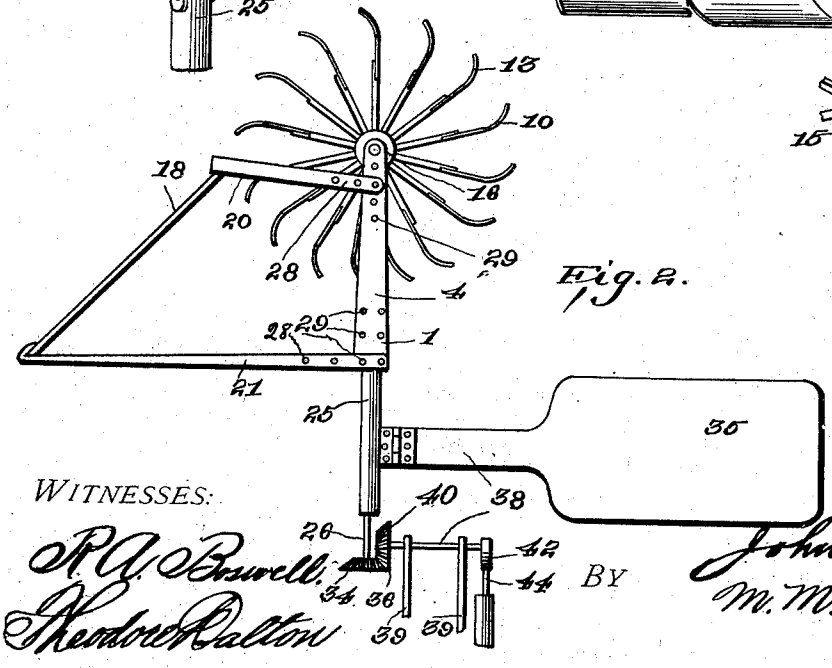


Fig. 2.

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WINDMILL.

SPECIFICATION forming part of Letters Patent No. 698,409, dated April 22, 1902.

Application filed June 18, 1900. Serial No. 20,728. (No model.)

To all whom it may concern:

Be it known that I, JOHN NEUSER, a citizen of the United States, residing at Woden, in the county of Hancock and State of Iowa, have invented certain new and useful Improvements in Windmills; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to windmills, having special reference to such as have two wind-wheels set upon a common shaft; and one of the objects is to arrange the wheels in such a manner that a slight breeze will operate the same.

Another object is to collect the wind and direct it upon the blades or fans of the wheels to the best possible advantage, whereby even when the breeze is slight the wheels will not only be operated, but they will also drive a pump connected thereto.

A still further object is to apply the force generated by the wheels to a pump-rod for operating a pump.

It consists in two wheels supplied with curved blades or fans set upon a horizontal common axle, to which axle is attached the pump-rod.

It also consists in a wind-collector formed of a board set in such relation to the wind-wheels that it will collect the wind and direct it at the most advantageous part of the wheels for operating them.

It further consists in an eccentric attached to the shaft of the wind-wheels and to the pump-rod in such a manner that the power generated by the wheels will be applied directly to the operating of the pump and also in a double gear, one of which is attached to the shaft of the wheel and another connected with the pump-rod, whereby the power is applied indirectly to the pump.

The manner in which this is accomplished will be fully set out in the following specification when taken in connection with the drawings accompanying the same.

Figure 1 is a perspective of my improved windmill. Fig. 2 is a side elevation. Fig. 3 is a plan view of one of the fans upon the wheels. Fig. 4 is a perspective of one of the wheels removed. Fig. 5 is a perspective of the shaft and pump-rod attached, showing but one wheel and part of the fans cut away. Fig. 6 is a perspective view of the shaft and pump-rod attached directly to the eccentric.

Like numerals of reference denote corresponding parts in all of the figures.

Referring to the drawings, 1 designates the frame, which is composed of a bed-piece 3, to the ends of which are secured the uprights 4. Near the top of the uprights are holes through which a shaft 5 passes and in which it has its bearings. Upon the shaft 5 are set two wind-wheels 7 and 8, each of which wheels is formed of a number of fans 10. (Shown in Fig. 3.) These fans are composed of sheet metal, with a space 12 cut from the center and bent near their outer ends at 13 and riveted at their outer edges to the arms 15 of a plate 16, which plate is securely fastened to the shaft.

For the purpose of collecting and guiding the wind against the curved portions of the wheels at nearly a right angle there is set a collecting-board 18 at an angle in front of said wheels and extending up to a line about parallel with the shaft 5. This board is maintained in this angular position by braces 20 21. The braces 20 and 21 may be provided with holes 28 for the purpose of adjusting the angle of the board with reference to the fans of the wheels. There may also be holes 29 in the uprights for the purpose of adjusting the board 18 in its perpendicular height.

A tube 25 passes up through the base 3 of the frame to near the shaft 5 and is hung to the shaft 5 by the straps 23. To the shaft 5 is also rigidly secured one wheel 22 of a bevel-gear 30. A rod 26 extends downward through the tube 25, and upon its top is the other wheel 32, comprising the gear 30. To the lower end of the rod 26 is attached one wheel 34 of the bevel-gear 36. A shaft 38 passes through the two uprights 39 and has its bearings therein, one end of which is supplied with a bevel-wheel 40, which meshes in with the bevel-wheel 34 and forms the gear 36. Upon the other end of the shaft 38 is secured an eccentric 42. (Shown in Fig. 6.)

A rod 44 is attached to the eccentric and is secured to the pump-rod.

To the tube 25 just below the lower line of

the board 18 is pivoted a tail-vane 35, which is operated by any well-known means for holding the vane in the line of the wind.

The manner of setting up and operating my device is substantially as follows: The wheels are set, as shown in Fig. 1, and the board 18 is then adjusted perpendicularly by attaching the braces 20 and 21 to the uprights 4 in one of the holes 29, and the angle at which the board will set with reference to the fans is further adjusted by attaching the braces 20 and 21 in one of the holes 28 to the upright 4, and this adjustment should be such that the wind collected upon the board 18 will strike the inner end of the fans at about a right angle, and as the fans are curved the wind will strike the fans at nearly right angles all the while until the fans have passed out of the reach of the wind from the board, and in this manner the force of the wind will strike against the fans at the greatest advantage for utilizing the power of the wind, and it will require only a small current of air to operate the wheels. It will be observed that the revolution of the wind-wheels will turn the wheel 22, which meshes into the wheel 32, and as this is rigidly attached to the shaft 26 it will revolve the gear 36 and the eccentric 42, and in this manner the pump will be operated through the means of the two bevel-gears 30 and 36. This mode of applying the force of the wind to the pump will operate the pump more slowly, but with much less wind.

If the wind is sufficiently strong, the eccentric 42 may be attached directly to the shaft 5, and the shaft 26 would then be attached to the eccentric-arm at its upper end and to the pump-rod at its lower end, as shown in Fig. 6, and in this manner the power of the wind would be utilized in a direct manner upon the pump-rod.

Having now described my invention, what I claim, and desire to secure by Letters Patent, is, viz:

1. A windmill consisting of a frame, one or more wind-wheels provided with fans curved at their outer ends, and attached to a shaft pivoted in the frame, and a wind-collector consisting of a flat surface arranged at an inclination in front of the lower portion of the wheel, combined with stays for adjustably connecting the lower portion of the collector with the frame, whereby the angle of the collector to the wheel may be changed; a tail-vane, an eccentric upon the shaft, and a pump-rod connected to the eccentric and operated thereby, substantially as specified.

2. In a windmill the combination with a frame, of one or more wind-wheels journaled in the frame and provided with curved fans, a horizontally and vertically adjustable wind-collector attached to the frame and adapted to deflect the wind against the fans at the upper half of the wheels, a pump-rod and gearing for operating said rod.

3. In a windmill, the combination with a frame, of one or more wind-wheels journaled in the frame, and provided with fans curved at their ends a wind-collector disposed at an angle in front of the lower half of the wheels and connected to the frame by an upper and lower pair of stays, each of which is horizontally and vertically adjustable to regulate respectively the height, inclination and outward and inward movement of the wind-collector, a pump-rod and means for operating said rod.

In testimony whereof I affix my signature in the presence of two witnesses.

JOHN NEUSER.

Witnesses:
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J. O. LEWIS.