

No. 680,314.

Patented Aug. 13, 1901.

A. K. CHILDS.
WINDMILL.

(Application filed Mar. 6, 1891.)

(No Model.)

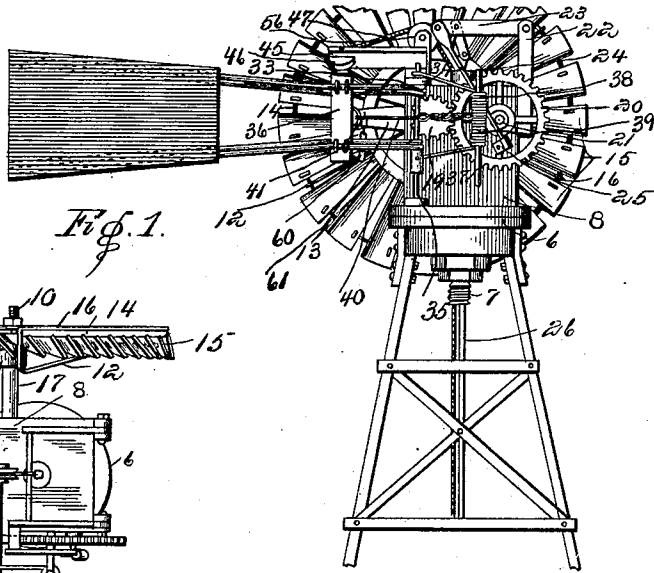


Fig. 1.

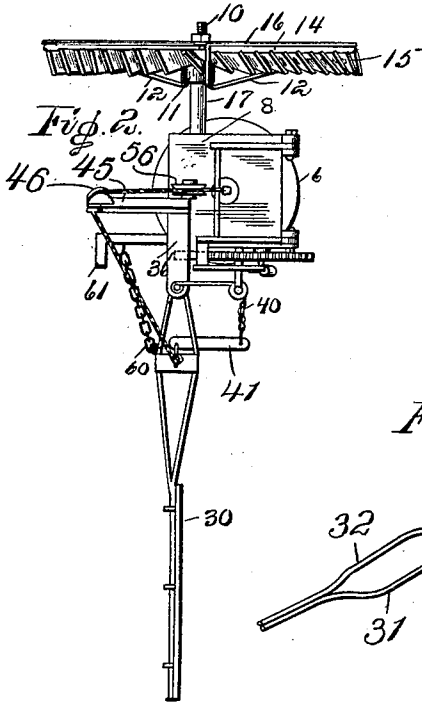


Fig. 2.

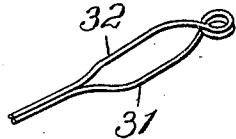


Fig. 3.

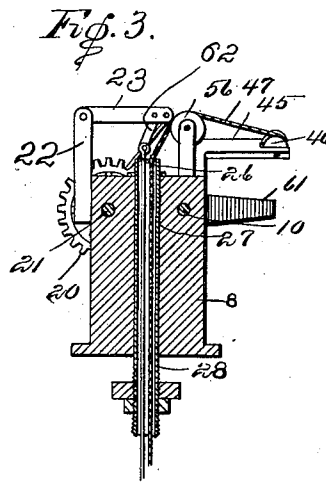


Fig. 4.

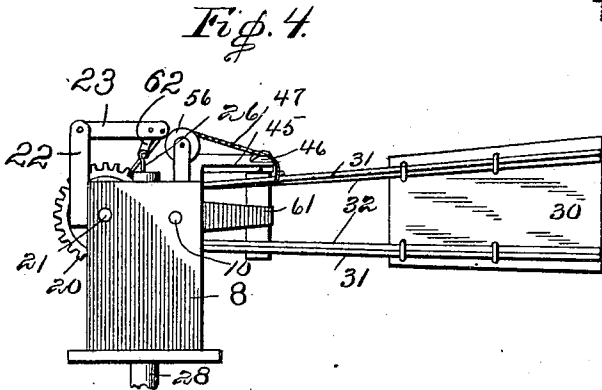


Fig. 5.

Witnesses
 E. A. Ryan
 H. L. Chandler

Inventor
 A. K. Childs.
 by *[Signature]*
 Attorneys

UNITED STATES PATENT OFFICE.

ALLIE K. CHILDS, OF LEOTI, KANSAS.

WINDMILL.

SPECIFICATION forming part of Letters Patent No. 680,314, dated August 13, 1901.

Application filed March 6, 1901. Serial No. 50,124. (No model.)

To all whom it may concern:

Be it known that I, ALLIE K. CHILDS, a citizen of the United States, residing at Leoti, in the county of Wichita, State of Kansas, 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.

This invention relates to windmills; and it has for its object to provide a simple and efficient construction wherein the vane may be readily and quickly operated to throw the wheel into and out of the wind and in which the mechanism between the wheel and the pump-rod will be durable and simple.

Further objects and advantages of the invention will be apparent from the following description.

In the drawings forming a portion of this specification, and in which like numerals of reference indicate similar parts in the several views, Figure 1 is a rear elevation of the complete mechanism with the upper portion of the tower and showing the vane turned laterally to hold the wheel from the wind. Fig. 2 is a top plan view of the mechanism with the vane in position to hold the wheel into the wind. Fig. 3 is a vertical transverse section through the head of the mill. Fig. 4 is an elevation showing the front of the head with the wheel removed and the remaining portions of the mechanism in place. Fig. 5 is a detail perspective view showing one of the rods bent to form a pair of supporting-arms for the blade of the vane.

Referring now to the drawings, there is shown a tower comprising upwardly-converging uprights surmounted by a platform 6, and in this platform is formed the usual bearing for the tubular stem 7 of the head 8 of the mill, the stem being adapted for rotation in the bearing to permit of turning of the head to move the wheel into and out of the wind.

In the head 8 is a horizontal bearing, in which is mounted a shaft 10, which carries a wind-wheel comprising a hub 11, from one end of which radiate spokes 12, supporting two concentric rims 13 and 14, to which are attached the blades 15, and to brace these rims rods 16 are provided, which are attached at

their outer ends to the outermost rims, while their inner ends are attached to the rear end of the hub 11. The head is provided with a forwardly-extending sleeve 17, through which the shaft is passed, and the rear end of the hub is adapted to engage the outer end of the sleeve to hold it against rearward movement. The shaft is provided with a pinion 19 at its rear end, and with this pinion meshes a gear-wheel 20, mounted upon a stub-shaft 21, projecting rearwardly from the head.

An arm 22 is attached to one side of the head 8 and projects thereabove, and the upper end of this arm is bifurcated to receive the end of a rocker 23, which is pivoted therein. To operate the rocker 23, a connecting-rod 24 is pivoted to its outer end, and the other end of the connecting-rod is engaged with a wrist-pin 25 upon the gear-wheel 20, whereby when the wind-wheel rotates the rocker is caused to move with its free end in a vertical plane. To the free end of the rocker is pivoted a link 62, which in turn is pivoted to the pump-rod 26, which leads downwardly through a passage 27 therethrough and which aligns with the opening of the hollow stem 28, and the lower end of the rod is connected with the pump in the usual manner.

In connection with the mechanism above described there is provided a vane 30, adapted for movement to swing the wheel into and out of the wind. This vane consists of two metallic rods, each of which is bent upon itself to form two arms 31 and 32 and a connecting-bight, and the bight is bent to form a loop 33. The arms of one rod are attached by clips to the upper edge of the vane-blade, while the arms of the other rod are attached adjacent to the lower edge of the vane-blade, the rods being disposed to diverge in the direction of the vane-blade, while the loops at the other ends of the rods are disposed in vertical alinement and are engaged over a bracket 34, which is secured to the rear face of the head 8 and which projects rearwardly and then upwardly therefrom, the upwardly-projecting portion forming a pintle on which the loops are directly received, and the bottom loop rests upon a shoulder 35 on the pintle. To further strengthen the structure, a block 36 is disposed with its upper end between the arms of the upper rod of the vane

and with its lower end between the arms of the lower rod, this block acting to hold the arms separated to present a trussed structure. An arm 36' extends rearwardly from the head 8 and is connected with the upper end of the pintle to prevent upward displacement of the loops of the rods of the vane from the pintle. At a point between the vane and the gear-wheel there is disposed a bracket 37, which projects rearwardly and then upwardly, and on this bracket is disposed a double helical spring including the helices 38 and 39, formed from a single wire and the adjacent ends of which are taken outwardly at right angles to the bracket and twisted together to form an eye 40 at their outer ends, and with this eye is engaged one end of a link 41, the opposite end of which is pivotally connected with the block 36. The opposite ends of the spring are connected with the pintle of the bracket 34. The tendency of this double spring is to hold the vane at right angles to the plane of the wind-wheel, or nearly so, so that when the wind has reached a certain velocity it will move the vane against the tendency of the spring to throw the wind-wheel out of the wind, thus automatically regulating the speed of the wheel.

When the mill is to be stopped, the vane is moved at right angles to the wheel-shaft and held in such position, so that the wheel will swing out of the wind.

To swing the vane laterally to cause the wheel to swing from the wind, an arm 45 is attached to the head 8 and projects therefrom in a direction at right angles to the wheel-shaft, and at the outer end of this arm is a pulley 46, a second pulley 56 being mounted adjacent to the vertical passage through the head. A chain or cable 47 is attached to the block 36 and is taken outwardly and over the pulley 46, then inwardly and downwardly over pulley 56, and thence through the head and the hollow stem thereof. By drawing downwardly on the cord or chain the vane is swung to move the wheel from the wind, and when the cable or chain is released the spring moves the vane back to operative position to

hold the wheel into the wind. A chain 60, attached to the block 36 and to an arm 61 on the head 8, limits the movement of the vane in an opposite direction.

It will be understood that in practice modifications of the specific construction shown may be made and that any suitable materials and proportions may be used for the various parts without departing from the spirit of the invention.

What is claimed is—

1. A vane for windmills comprising a blade, rods bent upon themselves to form two arms, said arms being attached to the blade adjacent to the upper and lower edges thereof, and having eyes at their bights alining in the plane of the blade, and a block disposed between and secured to the arms adjacent to the eyes to form trusses.

2. In a windmill the combination with a rotatable head provided with a wheel and pumping mechanism operably connected therewith, of a bracket upon the rear of the head and including a vertical pintle, a vane including a blade having rods bent upon themselves and attached at their ends to the blade, the bights of the rods being bent to form alining eyes rotatably engaged with the pintle, a block disposed between the rods to hold them spaced adjacent to the eyes, a second bracket upon the head, a double helical spring wound upon the second bracket and having the adjacent ends of the sections thereof taken outwardly and formed with a terminal eye, the opposite ends of the sections being connected with the pintle, a link connecting the eye of the spring with the block of the vane to hold the vane yieldably in predetermined position, and means for moving the vane against the tendency of the spring.

In testimony whereof I hereunto sign my name in the presence of two subscribing witnesses.

ALLIE K. CHILDS.

Witnesses:

R. C. GARNES,
N. G. FANNING.