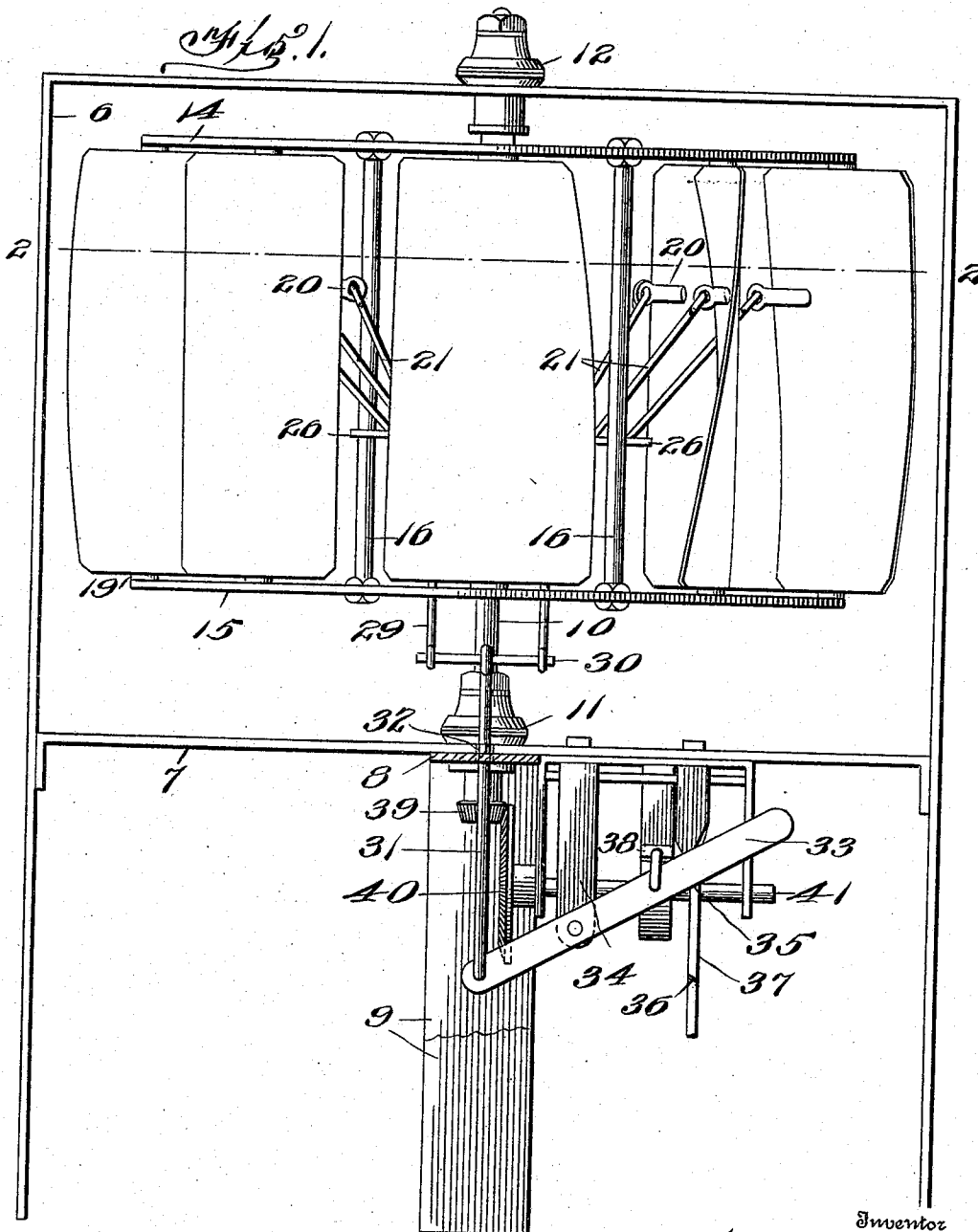


H. SCHMIT:
WIND WHEEL.
APPLICATION FILED APR. 17, 1909.

933,394.

Patented Sept. 7, 1909.
2 SHEETS—SHEET 1.



Witnesses
Geo S Thom
M. R. Norton

Inventor
Henry Schmit.

By *Geo. E. Tew*
Attorney

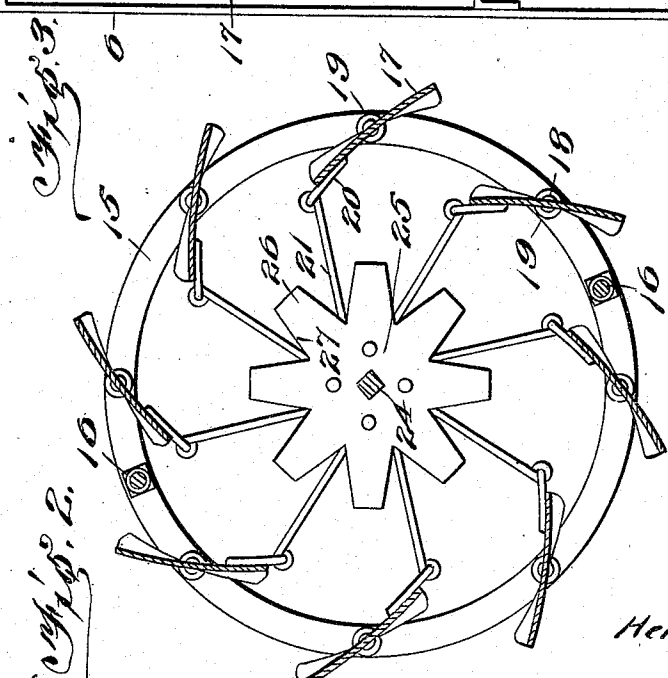
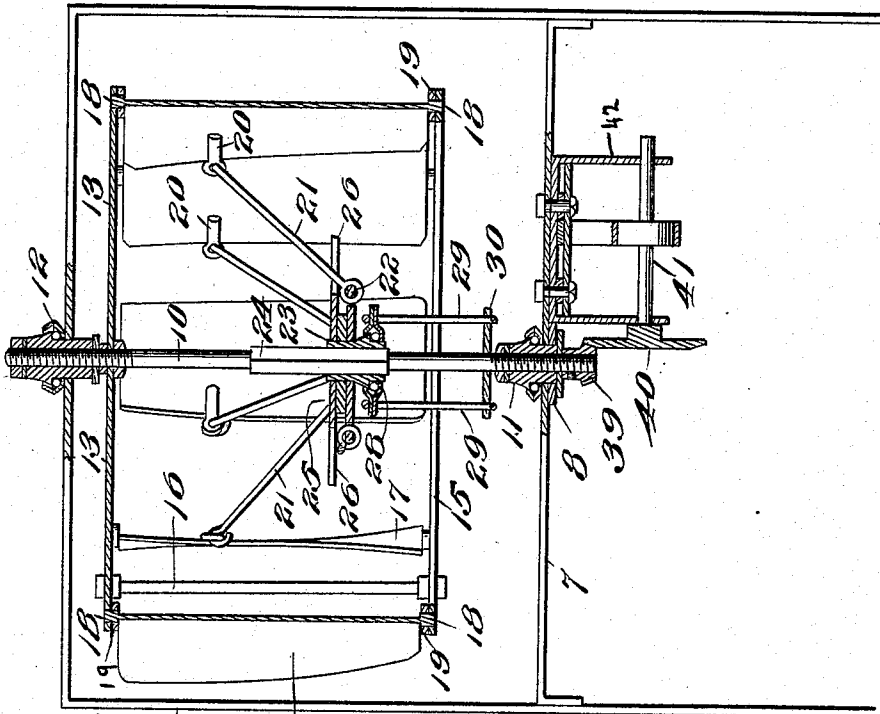
H. SCHMIT.
WIND WHEEL.

APPLICATION FILED APR. 17, 1909.

933,394.

Patented Sept. 7, 1909.

2 SHEETS—SHEET 2.



Witnesses

Geo. L. Thom
M. R. Norton

Inventor
Henry Schmit.

334

Wm. E. Jew
Attorney

UNITED STATES PATENT OFFICE.

HENRY SCHMIT, OF McPHERSON, KANSAS.

WIND-WHEEL.

933,394.

Specification of Letters Patent.

Patented Sept. 7, 1909.

Application filed April 17, 1909. Serial No. 490,441.

To all whom it may concern:

Be it known that I, HENRY SCHMIT, citizen of the United States, residing at McPherson, in the county of McPherson and State of Kansas, have invented certain new and useful Improvements in Wind-Wheels, of which the following is a specification.

This invention relates to wind wheels for power purposes, of that type having a horizontal rotary wheel, that is, one which revolves on a vertical axis.

The object of the invention is to improve the structure with respect to the means for supporting the blades or vanes in position to be turned into or out of the wind, in order to start or stop the wheel.

A further object of the invention is to provide improved means for holding the vanes in the position to which they are adjusted.

Further improvements relate to the manner in which and the means by which the shaft of the wheel is mounted in its supporting bearings.

The invention is illustrated in the accompanying drawings in which—

Figure 1 is a side elevation of the wheel. Fig. 2 is a horizontal section on the line 2—2 of Fig 1. Fig. 3 is a central vertical section.

The drawings illustrate that part of the invention which is mounted upon the usual tower or support, not shown, and referring specifically to the drawings, 6 indicates an angular bracket or support which is arched over the wheel and its opposite side pieces will be fastened at the feet thereof to the top of the tower. This arched frame supports a cross piece 7 which is fastened at its ends to the legs of the frame and extends across between the same. Another cross piece 8 is also provided, extending at right angles to the cross piece 7 and secured to said cross piece at the middle thereof, the piece 8 being supported at the ends by legs 9 the lower ends of which will be fastened to the tower. The shaft 10 of the wheel extends at its lower end through a ball bearing 11 mounted upon the cross piece 7 and supported by the same and the cross piece 8. The upper end of the shaft turns in a ball bearing 12 at the middle of the upper cross piece of the arched frame 6.

At its upper end, just below the cross piece of the frame 6, the shaft has oppositely extending arms 13 which support the upper

ring 14, and this in turn supports the lower ring 15 by means of depending hangers 16. A skeleton frame is thereby formed which turns with the shaft 10 and which supports the blades. Each blade 17 consists of a piece of sheet metal slightly dished or curved in horizontal cross section and of proper length or height to fit between the upper and lower rings 14 and 15. A series of these blades is arranged symmetrically around the wheel, and each blade is pivoted to said rings, at top and bottom, by pivots indicated at 18, washers 19 being used at the pivots. Said blades are thus free to turn, or be turned, on a vertical axis to vary their angular position with respect to the main axis of the wheel. Thus they can be set toward a radial position, in order to operate the wheel, or they can be closed to substantially circular position, so as to not catch the wind, when the wheel is to be stopped. The curvature of the blades is such that when closed they form practically a complete circle or cylinder, with blades in alinement with the rings of the wheel.

At its inner margin, and somewhat above the middle of the blade, each blade is provided with an inwardly extending arm 20 which is connected by a rod 21 to a peripheral flange 22 on a sleeve 23 which is movable up and down on a squared part 24 of the central shaft 10. The sleeve 23 must rotate with the shaft, but can nevertheless be slid up and down thereon. At its upper end said sleeve carries a star-shaped plate or device 25 the radial points or branches of which project beyond the sleeve and between the several rods 21 which connect the blades of the wheel to the flange 22. The branches 26 of the plate are so cut or shaped that the edges at one side thereof, indicated at 27, bear against the respective rods 21, and said edges form, in effect, guides for said rods, by which the movement of the rods is limited or guided, whereby the angle at which the blades 17 are set is also controlled. By means to be described, the sleeve 23 may be raised or lowered. When raised, the effect is to push or force the rod 21 outwardly and radially, whereby the blades 17 are turned on their pivots to or toward the inactive position. When the sleeve 23 is lowered the reverse action takes place, the rods being retracted or drawn down, causing the blades 17 to turn to present their con-

cave faces or sides to the wind. As the blades turn the rods 21 follow along the edges 27, and, when the blades are in open position, said rods rest against said edges, and thereby resist any tendency or possibility of the wind blowing any particular blade or blades beyond its proper position. In other words, the rods 21 have a bearing against the edges 27, and are thereby prevented from buckling or swinging in, and the blades are all maintained at the same relative position or angle with respect to the main shaft 10.

For lifting the sleeve 23 it is provided with a roller bearing collar 28 which is connected by rods 29 to a yoke 30 which has at the middle an opening through which the lower part of the shaft extends loosely. Said yoke is connected to a rod 31 which runs through a guide hole at 32 in the cross piece 8 and is connected at its lower end to a lever 33 which is fulcrumed on a bracket 34 attached to the cross piece 7. This lever may be manipulated in any suitable manner to start or stop the wheel, being arranged to engage in upper and lower notches 35 and 36 in a bracket 37 in the respective positions, and held at such an engagement by a spring 38.

The main shaft 10 is provided at its lower end with a bevel pinion 39 which meshes with a bevel gear 40 on a cross shaft 41 mounted in bearings in brackets 42 depending from the cross piece 7. Power may be transmitted from the shaft 41 in any desired manner.

When the lever 33 is operated in one direction, the yoke 30 is lifted which lifts the collar 28 and the sleeve 23, the sleeve being free to turn in said collar, as stated. As the sleeve lifts on the squared part of the shaft the rods 21 being forced outwardly close the blades of the wheel to substantially cylindrical form, thereby stopping the operation of the wheel. To start the wheel the sleeve 23 is pulled down by reverse movement of the lever, and the blades or vanes being thus turned toward a radial position they receive

the force of the wind on their concave sides and the wheel and the main shaft are turned accordingly.

I claim:

1. In a wind wheel, the combination of a vertical shaft, a series of blades arranged in vertical position around the shaft, means to support the blades on the shaft, the blades being pivoted at top and bottom, a non-rotatable sleeve movable up or down on the shaft, connecting rods between the sleeve and the blades, guides mounted on the sleeve and against which the rods bear to limit the turn of the blades, and means to raise or lower the sleeve.

2. The combination of a horizontal wind wheel having a central shaft and blades pivoted to turn on vertical axes and arranged in a circle around said shaft, means to support the blades on the shaft a sleeve slidable up or down on the shaft and non-rotatable with respect thereto, rods connecting the sleeve and blades, to turn the latter as the sleeve is raised or lowered, means to raise or lower the sleeve, and guide arms projecting from the sleeve and against which the rods bear to govern the turn of the blades.

3. The combination of a horizontal wind wheel having a central shaft and blades pivoted to turn on vertical axes and arranged in a circle around said shaft, means to support the blades on the shaft a sleeve slidable up or down on the shaft and non-rotatable with respect thereto, rods connecting the sleeve and the inner edges of the blades to turn the blades as the sleeve is raised or lowered, means to raise or lower the sleeve, and a guide plate fixed to the sleeve and having arms projecting radially between said rods, the edges of the arms being in contact with the rods and inclined to guide and support the rods, to control the turn of the blades.

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

HENRY SCHMIT.

Witnesses:

S. W. LINDSAY,
B. J. BECKER.