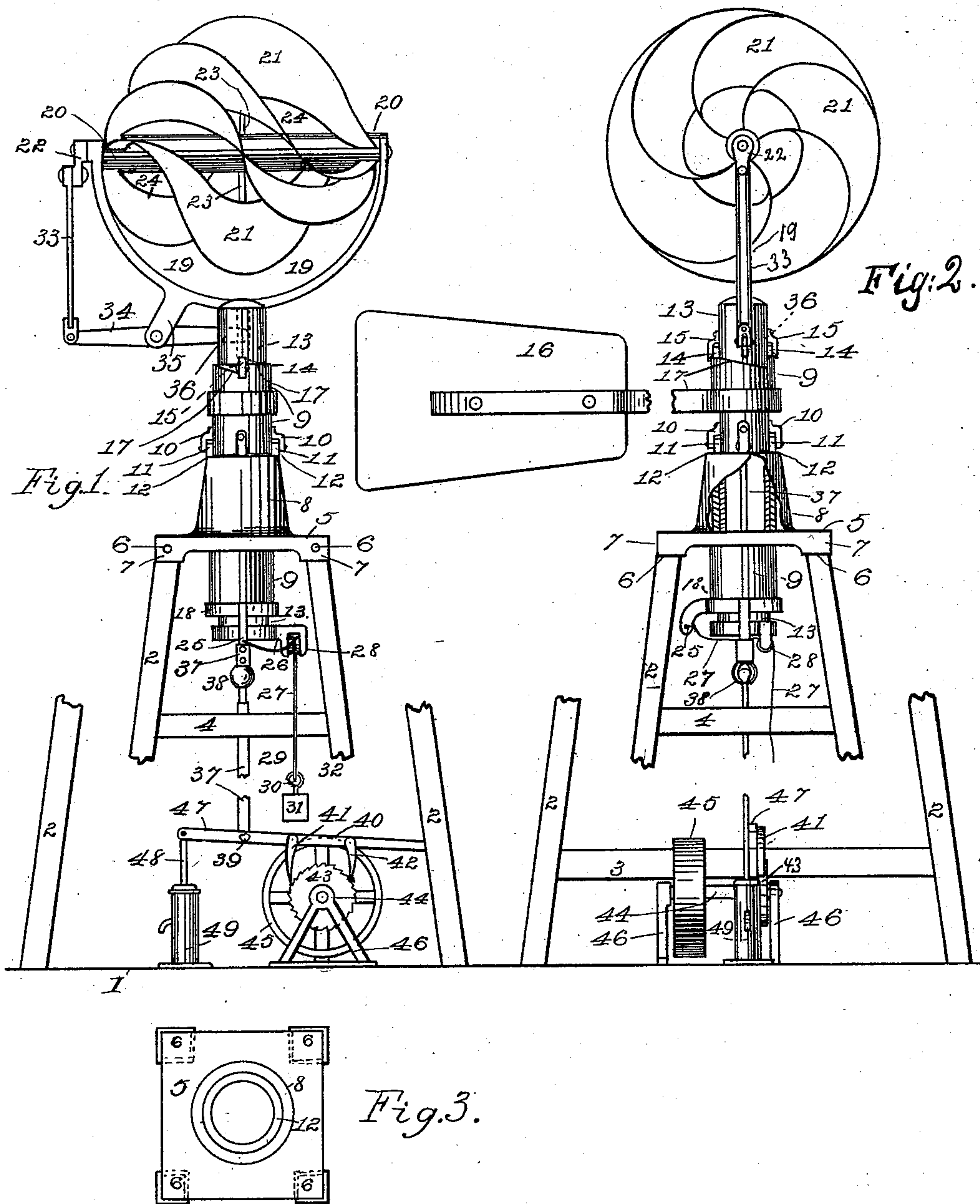


(No Model.)

P. O. LUTNES.
WINDMILL.

No. 527,866.

Patented Oct. 23, 1894.



Witnesses:
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UNITED STATES PATENT OFFICE.

PETER O. LUTNES, OF WHITE ROCK, SOUTH DAKOTA.

WINDMILL.

SPECIFICATION forming part of Letters Patent No. 527,866, dated October 23, 1894.

Application filed July 12, 1892. Serial No. 439,845. (No model.)

To all whom it may concern:

Be it known that I, PETER O. LUTNES, a citizen of the United States, residing at White Rock, in the county of Roberts and State of South Dakota, have invented certain new and useful Improvements in Windmills; and I do 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, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

My invention relates to improvements in wind mills, and has for its main object to provide a wind wheel that will furnish extraordinary great power in proportion to its diameter. I attain this object by the peculiar construction and arrangement of parts illustrated in the accompanying drawings, in which—

Figure 1, is a side elevation of the mill with a portion of its tower cut away to shorten the drawing. Fig. 2, is a front view of same. Fig. 3, is a top plan view of a casting that forms the top of the tower and may be termed the saddle.

Referring to the different parts in the drawings by numbers of reference, the main frame of the tower is composed of the platform 1, the four standards 2, which may preferably be timbers braced together by braces like 3, and 4, and other braces not shown.

5 is the cast plate or cap shown in Fig. 3. It is provided with four sockets 6, which are fitted down on the four top ends of the standards 2, and bolted thereto by bolts 7, passed through the walls of the sockets and the ends of the standards 2.

The plate 5 is provided with an upwardly extending hollow boss, tube or bearing 8, in which is journaled revoluble hollow tube or sleeve 9, provided with several lugs 10, between which and the body of the tube are pivotally mounted anti-friction rollers 11, which roll upon the annular top end 12, of the tube 8. Near the upper end of the tube 9 is secured a detachable vane 16. The top of the sleeve 9 is cast or formed at its upper end in such a shape as to provide two inclines or cams 17, upon opposite sides of the tube. Inside of said tube 9, is journaled an oscillat-

ing tube provided upon two opposite sides with lugs 15, between which and the tube are pivotally secured the two friction rollers 14. The function of said cams 17, and rollers 14, will presently be more fully described. The tube or inner sleeve 13, is at its upper end provided with a bifurcated arm or fork 19, in the upper ends of which are journaled the ends of a shaft 20, of which one end projects through and beyond its bearing and is provided with a crank 22, secured thereon.

Upon the shaft 20, I provide the spiral-shaped wings 21, which I preferably make of sheet iron or steel. Said wings are narrowed toward their ends, which are secured upon the shaft 20, at or near the ends of same at such different circumferential location as to give the wings an oblique position to the shaft 20. Said wings are wider at the middle than at the ends, and are at their middle secured to the shaft by braces 23, which hold the wings at a considerable distance away from the shaft 20, so as to form spaces or openings 24, for the escape of the wind when the side of the wheel is turned to the wind. It will be observed also that said wings are twisted and of such peculiar shape that the wheel as a whole assumes a globular appearance or shape.

On the lower ends of the tubes 13, and 9, are provided rigid brackets or arms 25, and 26, arranged at about right-angles to each other. They are held in this position by the weight of the wind wheel which at all times tends to keep the rollers 14, down at the base of the cams 17, no matter where said cams are turned with the sleeve 9 by the vane 16, and as long as the tubes 9 and 13, remain in this position the vane 16, will hold the side of the wind wheel against the wind, which in that case has no effect on the wheel to turn it, as it escapes through the openings 24, and what pressure does not so escape is equally divided above and below the center of the wheel and can thus not revolve it.

To the end of the bracket or arm 25, is fastened the end of a rope or chain 27, that passes over a small rope sheave 28, pivotally secured in the end of the arm 26, and hangs down with its free end 29, to within the reach of a person standing on the platform 1. The end 29, of the rope 27, is provided with a small weight 30, by which to keep the rope in

position so the wind cannot blow it out of reach or tangle it up.

31, is a larger weight provided with a bifurcated hook 32 which straddles the rope 29, and takes hold upon the top of the small weight 30. When this large weight 31, is hung onto the rope, the rope causes the arm 26, to swing sidewise until it stops against the arm 25, that is held in position by the vane. This swinging of the arm 26, turns the tube 13, and causes the rollers 14, to roll up the inclines of the cams 17, from whence they will descend again, by reason of the weight of the wind wheel and other parts connected therewith, as soon as the weight 31, is removed from the rope end 29, but as long as the weight 31, remains on the rope the arms 25, and 26, will stay pulled together and the vane 16, will thereby cause the shaft 20, of the wind wheel to stay endwise against the wind, which will then pour its current in between the spiral wings 21, pressing sidewise upon their large long surfaces, causing the wheel to revolve with great rapidity. It will be observed that the current pressing upon the main or broad part of the wings passes the wings before reaching their extreme ends at the vane-end of the wheel, but that does not leave those ends of the wings unoperated by the wind, as there is a current passing in along the shaft from between the front ends of the wings and strikes the rear portion of the wings as those come in line with the openings or spaces between the front ends of the wings. The current slipping off sidewise from the broad part of the wings toward the shaft also adds to the density of the current passing along the shaft and operating on the rear ends of the wings.

To the crank 22, is pivotally connected a pitman 33, connected at its lower end to the outer end of a horizontal lever 34, which at a suitable point near its middle is pivoted in a bifurcated bracket 35, projecting from one of the fork arms 19. The inner end of said lever 34, passes in through a slot 36, in the hollow tube 13, to about the center of said tube, and is there pivotally connected to a connecting rod 37. (Clearly shown in Fig. 2, through a cut-away in the boss 8.) This connecting rod 37, is provided with a ball and socket joint 38, below the lower ends of the tubes 9, and 13, to allow of the wind wheel adjusting itself to the direction of the wind.

Below the joint 38, said connecting rod 37, passes down through suitable guides or cross braces of the tower and is pivoted at 39, to a horizontal lever 40, one end of which is suitably pivoted to the horizontal side bar 3, of the tower. The lever 40, is provided with a

pushing pawl 41, and a pulling pawl 42, engaging with a ratchet wheel 43, secured on a shaft 44, by which means rotary motion is imparted to said shaft 44, and to the pulley fly wheel 45, secured thereon, and from which a belt will transmit rotary motion to other machinery. The shaft 44, is journaled in the bearings or stands 46, secured to the platform 1, of the tower. To the end 47, of the lever 40, is pivotally connected the piston rod 48, of the pump 49, secured upon the platform.

In operation the crank 22, when revolved by the wind wheel, operates the pitman 33, lever 34, connecting rod 37, and lever 40, thereby pumping water by the pump 49, and simultaneously operating other machinery by one or more belts from the pulley 45.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a wind mill the combination of the horizontal shaft 20, having the wings 21, said shaft 20, being journaled in the upper ends of a fork as 19, with the swivel tube 13, rigidly secured to said fork and having two friction rollers as 14, rolling upon two cams as 17, formed at the top of another tube as 9, in which it is journaled, said tube 9, being journaled in a boss as 8, at the top of the wind mill tower, and having anti-friction rollers as 11 riding on the annular top of said boss 8, and being provided with a vane as 16, for holding the tube and its cams 17, in a certain position to the wind; the sheave 28, rope 27 and weights 30 and 31; the arms 25 and 26, so arranged relatively to the vane 16, cams 17 and fork 19, that when the arms are brought together by the rope 27, the vane will hold the wind wheel shaft 20 parallel with the current of the wind, and when the rope is released the arms will spread and throw the side of the wheel to the wind, or vice versa, substantially as shown and described, and for the purpose set forth.

2. In a wind mill, the combination with a horizontal wind wheel shaft as 20 having its ends journaled in a two-armed bracket or fork as 19, of the crank 22, secured upon the end of said shaft outside the fork, the pitman 33, the two-armed lever 34, pivoted in the bracket 35, and working through a slot as 36, the connecting rod 37, having the swivel or ball joint 38, substantially as shown and described and for the purpose set forth.

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

PETER O. LUTNES.

Witnesses:

C. H. COLYER,
PEDER SOLEM.