

W. H. STEWART.
WIND ENGINE.

No. 519,977.

Patented May 15, 1894.

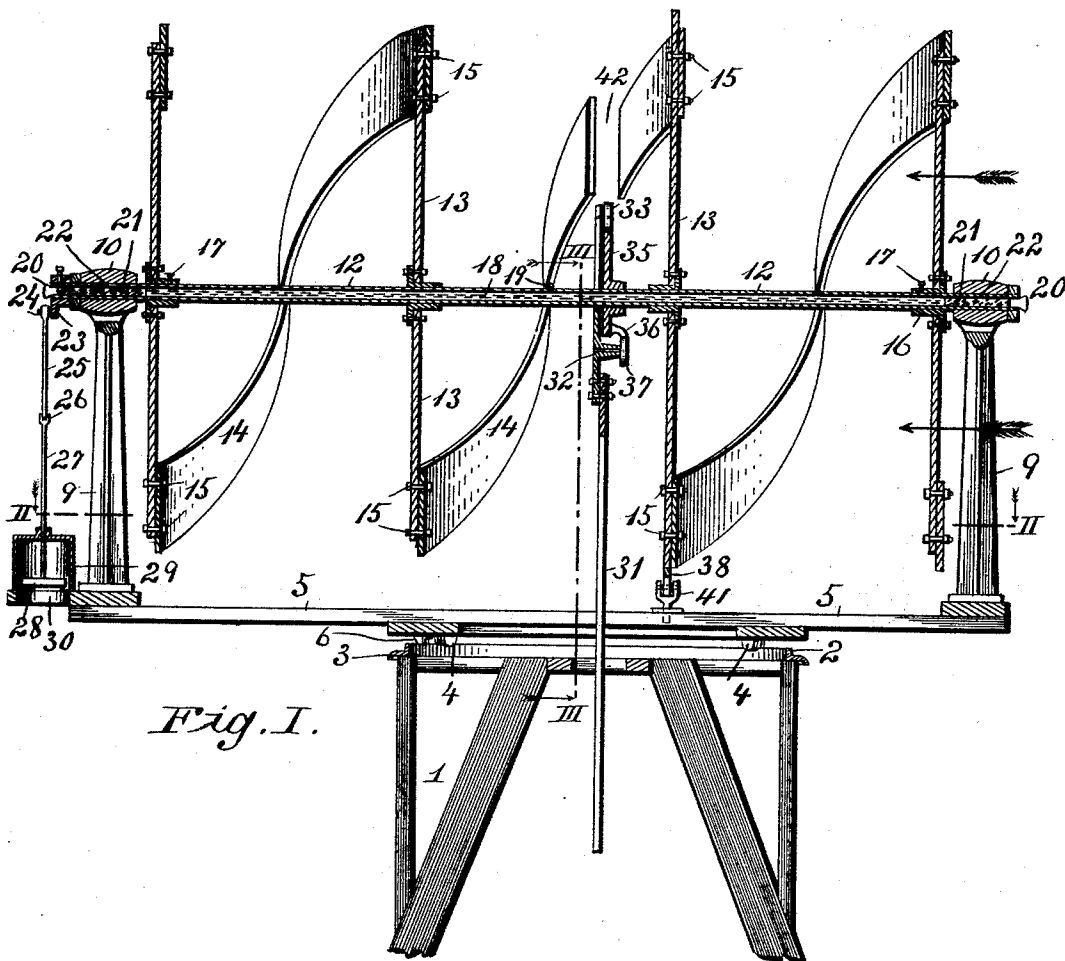


Fig. I.

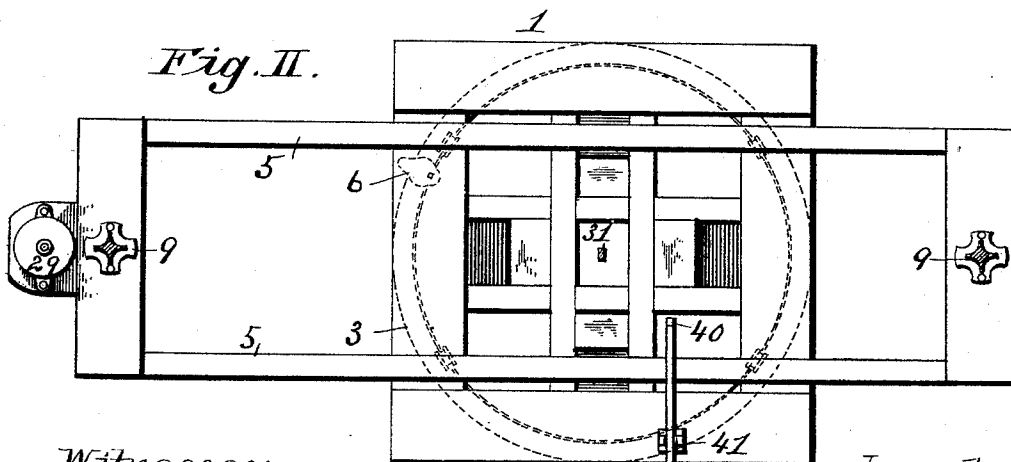


Fig. II.

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Fig. III.

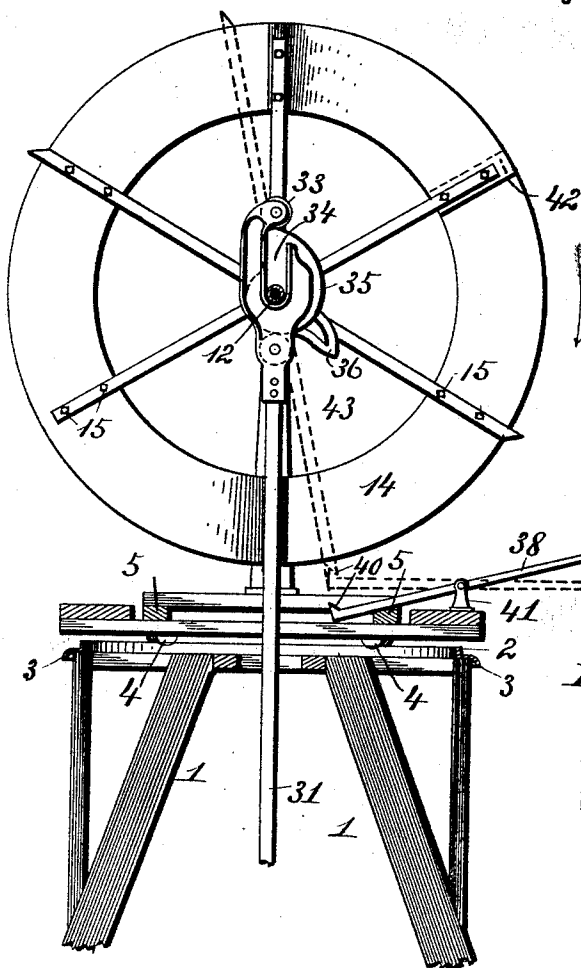


Fig. IV.

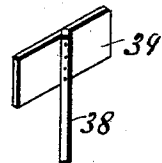


Fig. V.

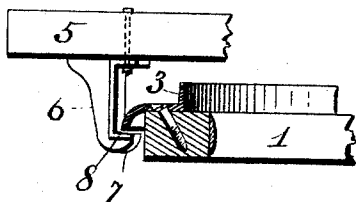


Fig. VI.

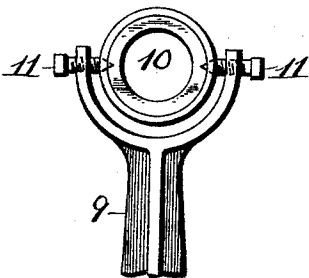


Fig. VII.

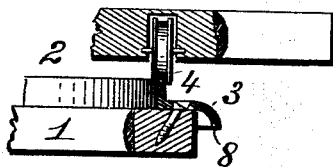


Fig. VIII.

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UNITED STATES PATENT OFFICE.

WILLIAM H. STEWART, OF KANSAS CITY, KANSAS, ASSIGNOR OF ONE-HALF
TO CHARLES S. SMITH, OF SAME PLACE.

WIND-ENGINE.

SPECIFICATION forming part of Letters Patent No. 519,977, dated May 15, 1894.

Application filed September 7, 1892. Serial No. 445,237. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. STEWART, of Kansas City, in the county of Wyandotte and State of Kansas, have invented certain new and useful Improvements in Wind-Engines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to certain new and useful improvements in wind engines; and my invention consists in certain features of novelty hereinafter described and pointed out in the "claims."

Figure I, represents a longitudinal vertical section of my improved engine or power. Fig. II, is a horizontal section showing the top of the tower and frame for supporting the motor, said section being taken on line II, of Fig. I. Fig. III, is a vertical section taken on line III, III, Fig. I. Fig. IV, is a detail perspective of the brake for stopping the operation of the engine. Fig. V, is an enlarged detail section of the track and frame. Fig. VI, is a detail view showing manner of supporting the shaft with which the spiral blades are connected. Fig. VII, is an enlarged detail view of the track showing rollers for supporting the motor frame. Fig. VIII, is a longitudinal section of the shaft to which the spiral blades are connected.

Referring to the drawings: 1, represents the upper end of the frame work, or tower for supporting the engine.

2, represents a circular plate suitably secured to the top of the tower, said plate having a track 3, on which rollers 4, travel, said rollers 4, being journaled to a horizontal frame 5, leaving said frame free to move in a circular direction.

6, represents hangers secured to the frame 5, and extending downwardly, said hangers having lips 7, which extend beneath the flange 8, on the plate 2, thus preventing the frame 5 from rising above its normal position, keeping the wheels 4, upon the track 3. Located at either end of the frame 5, are posts 9, supporting swivel sleeves 10, by means of pivot screws 11 (shown in Fig. VI) in which the central shaft 12, is journaled. By ad-

justing the sleeves 10, the shaft 12, may be adjusted at will.

To the shaft 12, is secured a series of radial arms 13, to the outer ends of which are secured a spiral blade 14. Said blades may be bolted to said arms, as shown at 15, or otherwise secured, if found desirable. The purpose of the blades 14, is to present a curved surface, or constantly receding surface to the path of the wind, the wind striking the blades from the direction shown by arrows in Fig. I, and constantly traveling along the same to the opposite end of said blades.

The arms 13, are secured at their inner ends to sleeves 16, on the shaft 12, certain of said sleeves being provided with set-screws 17, by which means the inclination of the blades 14, may be adjusted at will.

It will be noted that the frame 5, extends farther in one direction beyond the center of the tower than in the other direction. My purpose in constructing it in this manner is to avoid the use of a vane in order to present the right surface to the path of the wind, one end of the frame being longer, and consequently supporting a greater surface of blades, will cause the opposite end always to face the wind, thereby presenting the proper surface of the blades to the wind to keep up a continuous motion without the use of a vane and its connecting devices to keep the motor device at the right inclination.

The shaft 12, is formed of gas pipe or tube having a central opening 18, into which oil may be inserted by withdrawing the stopper 19. The opposite ends of said tube are closed by plugs 20, to prevent the passage of the oil from the same, and packings 21, are provided near the ends of the tube for retaining the oil. 22, are openings extending through the shell of the tube to the journals 10, for the purpose of lubricating the same.

One end of the shaft 12, is provided with a sleeve 23, having a wrist pin 24, to which one end of a rod 25, is pivoted. The opposite end of said rod 25, is connected, at 26, to the upper end of a piston rod 27, which has a piston 28, on its lower end. The said piston 28, operates in a dash-pot 29, which has an opening 30, on its under side for the admission of air,

said dash-pot thus acting as a governor, regulating the rotation of the shaft 12.

31, represents a pitman or power rod extending to the bottom of the tower, and having a head 32, secured to its upper end, said head having a roller 33, journaled to its upper end. The head 32, is forked, leaving a space 34, so that the forked ends of the head pass to either side of the shaft 12, and form a guide for the upper end of the power rod. (See Fig. III.)

35, represents a cam secured to the shaft 12, said cam, as the shaft revolves, coming in contact with the roller 33, on the head 32, thus raising the rod to the required degree to act as a pump or to transmit power to other devices, as may be desired. Secured to the cam 35, is a cam 36, the purpose of said cam 36, being to assist gravity in the return of the pitman or power rod to its normal position. The cam 36, coming in contact with a roller 37, on the head 32, ordinarily the head 32 and rod 31, will descend by gravity to the lowest point, and there will be no need of the cam 36; but I have deemed it best to provide the same in order to have a positive action if from any cause gravity should not cause the pitman to descend to the proper distance.

In case of a violent wind or cyclone, it would be desirable to stop the motion of the motor wheel. In order to do this, I provide a lever 38, having a blade 39, placed at an angle, with which the wind would come in contact, and when blowing sufficiently strong would cause the blade to descend and the opposite end of the lever to ascend, which is provided with a hook 40, which would come in contact with one of the radial arms 13, and stop the motion of the power wheel; (see Fig. III) the lever 38, being pivoted to a bracket 41, supported by the frame 5.

The blade 14, is divided (as shown at 42), in order to leave space for the passage of the wheel, where it would come in contact with the pitman or rod 31. The power wheel is provided with a central longitudinal opening 43, which permits the wind to pass through,

thus reducing the strain upon the wheel, and which also permits the wind when traveling at an angle with the longitudinal axis of the wheel, to come in contact with the inner edges of the blades and assist in rotating the same.

It will be noted that in constructing a power wheel of the above description, I am enabled to locate the same centrally over the tower, thus avoiding a large amount of strain, and enabling me to construct a larger wheel than would be possible if the wheel were operated to one side of the center of the tower.

I claim as my invention—

1. In a wind engine, the combination of a suitable support, a frame rotatably mounted on said support, a shaft carried by said frame, radial arms secured to and extending from said shaft, and a continuous spiral blade secured to said radial arms, substantially as shown and described.

2. In a wind engine, the combination of a support and a power device consisting of a continuous spiral blade, mounted on a horizontal axis which is journaled in a frame rotating about a vertical axis; said horizontal axis being made to intersect the line of the vertical axis, but to project unequally on opposite sides thereof, substantially as set forth.

3. In a wind engine, the combination of a spiral blade; a frame for supporting the same, said frame being pivoted so that one of its ends is of greater length than its opposite end, and supporting a greater amount of the blade than the opposite end; substantially as and for the purpose set forth.

4. In a wind engine, the combination of a shaft; radial arms connected therewith, spiral blades connected with said arms, a pivoted lever 38, a blade 39, on one end of said lever, and a hook on its opposite end for engaging one of the radial arms; substantially as described and for the purpose set forth.

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Witnesses:

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