No. 666,808. Patented Jan. 29, 1901.

J. P. KELSO.

CURRENT WHEEL.

(Application filed Apr. 5, 1900.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1.

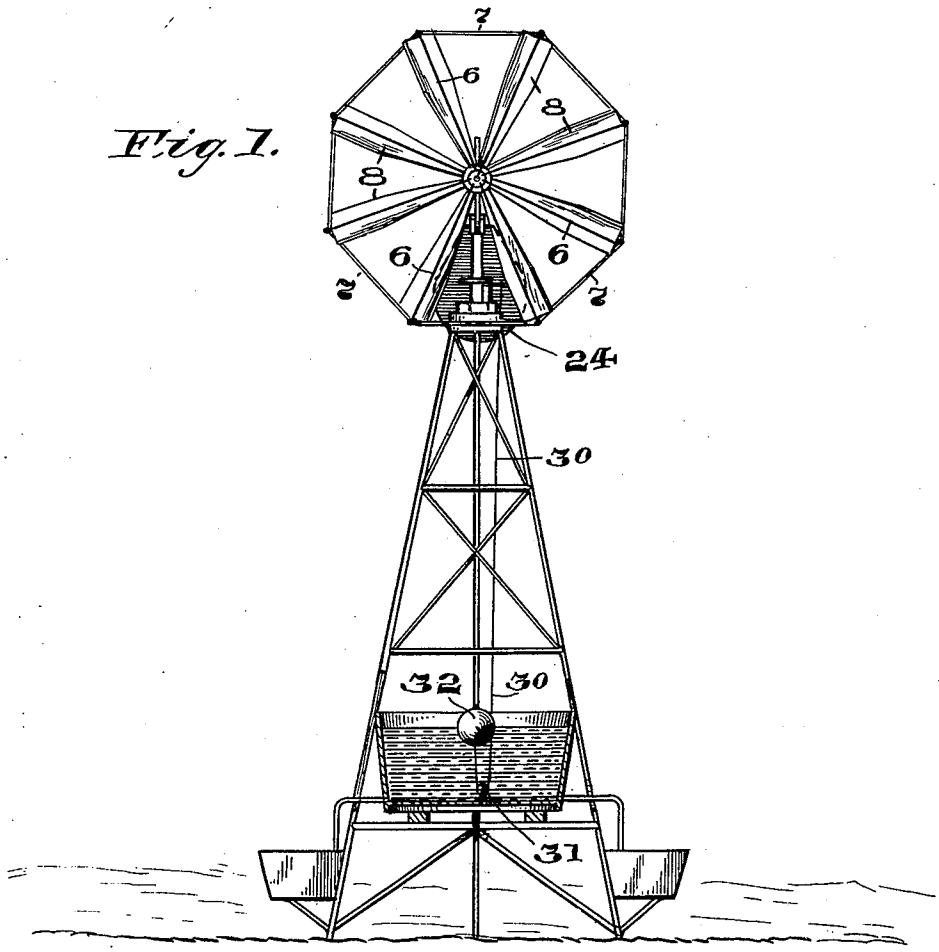

Fig. 4.

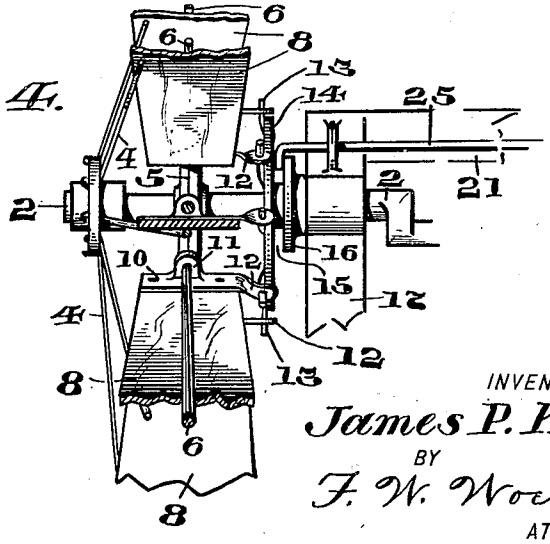

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Fig. 2.

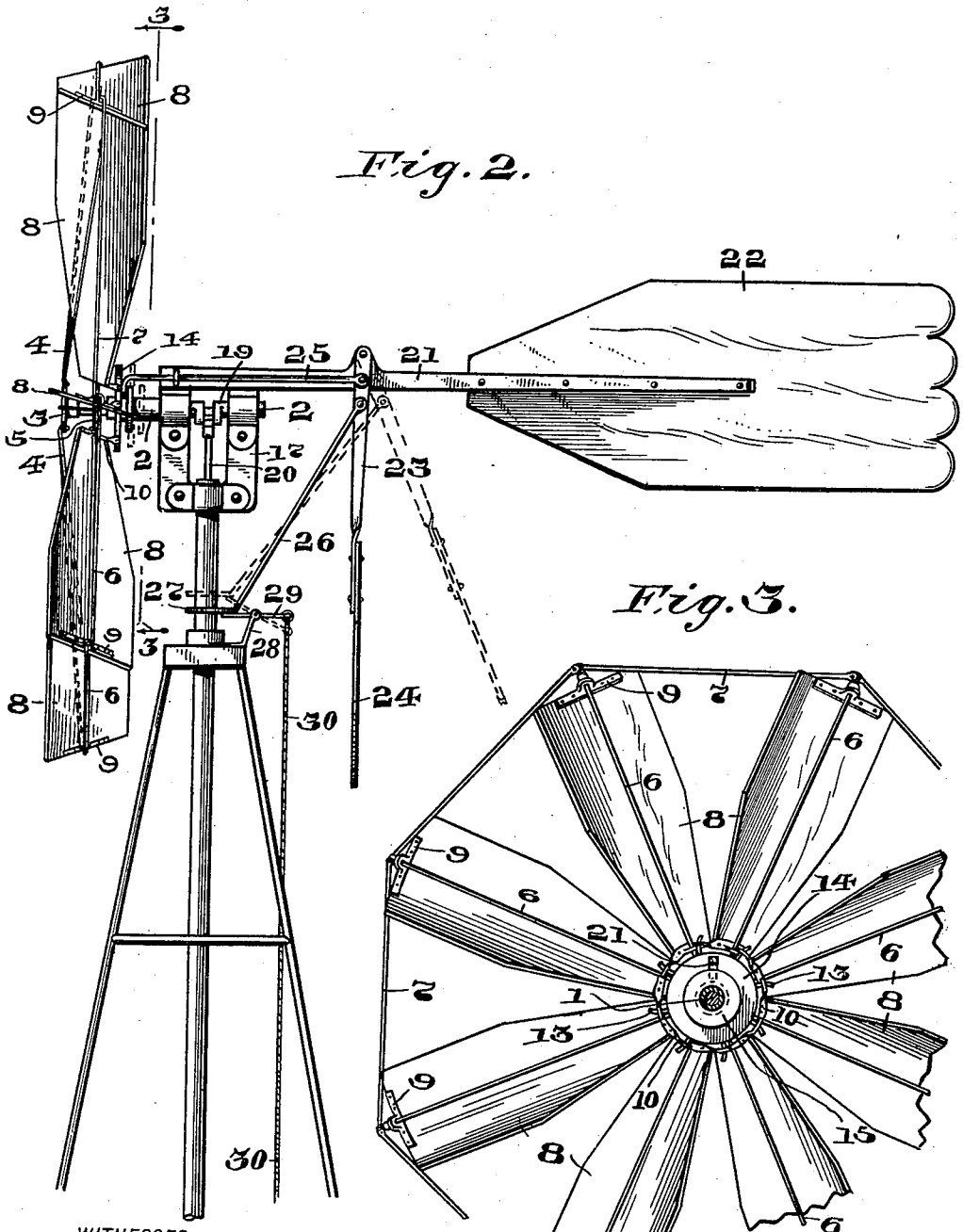

Fig. 3.

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UNITED STATES PATENT OFFICE.

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CURRENT-WHEEL.

SPECIFICATION forming part of Letters Patent No. 666,808, dated January 29, 1901.

Application filed April 5, 1900. Serial No. 11,735. (No model.)

To all whom it may concern:

Be it known that I, JAMES P. KELSO, a citizen of the United States, residing at Morgantown, in the county of Morgan and State of Indiana, have invented certain new and useful Improvements in Current-Wheels, of which the following is a specification.

The object of my invention is to produce a current-wheel which is propelled by wind-currents and is to be used in conjunction with pumps for pumping water and the like.

The object also consists in the production of a power-wheel which will start and stop automatically, and is particularly adapted to be used in the refilling of tanks from which the liquid contents are continually drawn. After the water has been withdrawn to a certain predetermined point the current-wheel is set in motion, thereby refilling the tank. When the tank has been refilled to a point before determined, the mechanism is again automatically stopped.

My invention consists in placing a governor therein which will automatically stop the current-wheel when the velocity of the wind has reached a destructive degree, in which case the efficiency of the mechanism might be impaired. Combined with the automatic arrangement, the pump and current-wheel may also be regulated by the will of the operator.

The various parts required to bring about the different results will be hereinafter more particularly described and then pointed out in the claims.

Referring to the accompanying drawings, which are made a part hereof, and on which similar numerals of reference indicate similar parts, Figure 1 is a front elevation of my current-wheel placed into operating position. In this figure I have shown a water-tank mounted within the main structure or framework, the tank being cut in section, thereby exposing the buoy that floats therein. Fig. 2 is a side elevation of my current-wheel and the surrounding mechanism, all of which is on a considerably-enlarged scale. Fig. 3 is a rear view of the wheel as seen when looking in the direction indicated by the arrows on the line 3 3 in Fig. 2; and Fig. 4 is a fragmentary edge view of the wheel, which is on a still further enlarged scale and shows the wheel's blades out of use or in their resting position, their edges now being set with the wind.

The wheel 1 is mounted at the top of an elevated structure which is of an old and well-known variety and is of a sufficient height to insure the blades of the wheel to be exposed to the wind. The wheel 1 is composed of a series of disks, all of which are mounted on the main shaft 2. The forward disk 3 is rigidly secured to the shaft 2 and forms a bearing to which the brace-rods 4 are secured. The rods 4 extend from the disk 3 to the outer ends of the spokes and add stability to the wheel in common.

5 is the central disk, which is similar to the disk 3 and is rigidly secured to the main shaft. The disk 5 carries the spokes 6, that form the current-wheel proper. The spokes 6 at their outer ends are tied together by the rods 7, whereby the shape of the wheel is maintained. The blades 8 are pivotally secured to the spokes 6 by means of the integral straps 9 and 10, carrying the ears 11 and having the eyes through which the spokes 6 pass. The straps 10, which form the pivotal point for the inner ends of the blades 8, (see Fig. 4,) have in addition to the ears 11 the ears 12, which are formed out of one end of the straps 10, each of which carries an eye which engages with a corresponding stud 13, which radiates from the periphery of the disk 14, which disk is loosely mounted on the main shaft and is susceptible to longitudinal movement on said shaft. The disk 14 is reduced in diameter at the rear and is formed into a smaller disk 16 and has in addition to the disk 16 the annular groove 15. It will be noted that while the disk 14 is loosely mounted on the main shaft it nevertheless revolves therewith through its connection with the blades 8, as heretofore described.

The shaft is mounted in a yoke 17, which yoke is secured to the upper portion of the piping. Between the arms 18, which form the yoke, the shaft is formed into a crank 19, to which the pitman 20 is secured and through which the pump is operated. Secured to the upper part of the yoke 17 and extending backward in a horizontal manner therewith is the beam 21, to which the rudder or guide 22 is

secured and whose use is old and well known. Pivotally secured to the central portion of the beam 21 is the governor-arm 23, which arm extends downward in a perpendicular manner and carries the blade 24, which forms the governor. The blade 24 is mounted so as to stand squarely against the wind at all times and is of a sufficient area to produce enough power to oscillate the blades 8 on the current-wheel, causing said wheel to stop. As the velocity of the wind decreases the governor 24 resumes its normal position, which again sets the current-wheel in motion.

Mounted alongside the beam 21 and running parallel therewith is the rod 25, which rod is pivotally secured to the governor-arm 23 at one end and having the other end turned in a right-angle manner, which forms a nose that engages with the groove 15 in the sliding disk 14 on the main shaft. Normally the governor-arm 23 extends downward in a perpendicular manner, where it remains unless raised by natural or artificial force. By "raising the governor by natural force" is meant when the wind actuates the governor during an excessive blast, during which time I desire to have the wheel remain idle.

In Fig. 1 I have shown a tank for water mounted in the framework, and by the use of a floating buoy 32 the current-wheel can be automatically stopped or started when the tank has been filled or drained to a certain point. In order to regulate the current-wheel by the use of a floating buoy in the tank, I secure an arm 26 to the governor-arm 23 in a pivotal manner and run said rod downward and inward to the central pipe. The lower end of the rod 26 has a loop 27 formed therein, which surrounds the pipe, the pipe forming a vertical guide for the rod. A standard 28 is secured to the upper framework and forms a bearing for the lever 29. The inner end of the lever 29 projects under the loop 27 on the rod 26 and forms a seat for said rod. The outer end of the lever 29 has an eye formed therein and to which the rope or cable 30 is secured. The rope 30 extends downward into the tank and around a sheave 31, which is secured to the floor of the tank, and upward to the floating buoy 32, which rests on the water-surface and to which the end of the rope 30 is attached. When the tank is full of water, the buoy 32, having risen with the water, draws on the rope 30, which operates the lever 29, and through this lever the rod 26 is moved upward, and through its connection with the governor-arm the governor is moved into the position as shown in dotted lines in Fig. 2. During the aforesaid movement the governor-arm 23 draws on the horizontal rod 25, and through its connection with the sliding disk 14 on the main shaft the disk 14 is moved backward in a longitudinal manner on said shaft. The disk 14, as before stated, carries the studs 13, which engage with the ears 12 on the blades 8, and through this connection the blades are oscillated, through which movement the blades are set so as to start or stop the wheel, as the case may be. As the water is withdrawn from the tank the action through the different parts is exactly opposite, as heretofore described.

When the operator desires to stop the current-wheel from running, he pulls downward on the cable 30 and secures said cable when in this position.

It will be readily seen that I have a current-wheel which will automatically regulate itself or be regulated by the operator, all of which can be accomplished in a simple and economical manner.

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

In a wind or current wheel, in combination with the main shaft mounted horizontally in a yoke, the said yoke being secured to the upper pipe structure, a power-wheel composed of a series of disks 3, 5 and 14, all of which are mounted on said shaft, the disk 5 carrying a series of radial spokes which form the wheel proper, blades pivotally secured to the spokes by the integral straps 9 and 10 carrying the ears 11; secondary ears 12 formed in the ends of the straps 10, studs 13 on the sliding disk 14 adapted to engage with the ears 12 on the blades 8, whereby the blades oscillate when the disk 14 moves longitudinally on the shaft 1; a groove 15 and a second integral disk formed in the disk 14, a rod having a nose formed thereon which engages with the groove 15 and is pivotally secured to the governor-arm, a governor-arm pivotally secured to the rudder-beam and which is susceptible to reciprocating movement, through which movement the rod 25 is actuated, and which oscillates the blades 8, substantially as shown and for the purpose set forth.

In witness whereof I have hereunto set my hand and seal at Indianapolis, Indiana, this 25th day of January, A. D. 1900.

JAMES P. KELSO. [L. S.]

Witnesses:
F. W. WOERNER,
L. A. MCDONALD.