

(No Model.)

2 Sheets—Sheet 1.

S. GRISWOLD.
WIND ENGINE.

No. 455,201.

Patented June 30, 1891.

Fig. 1.

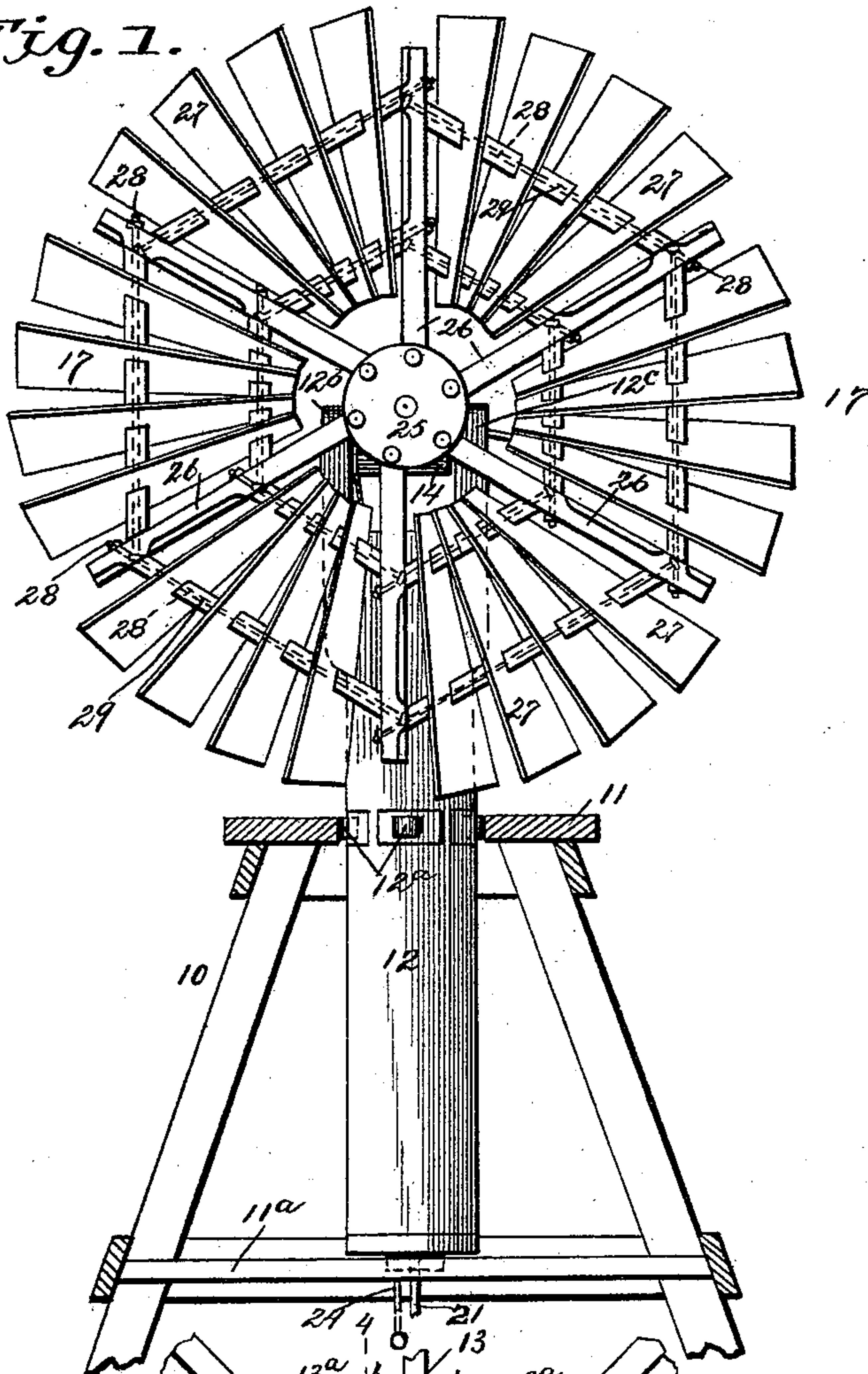
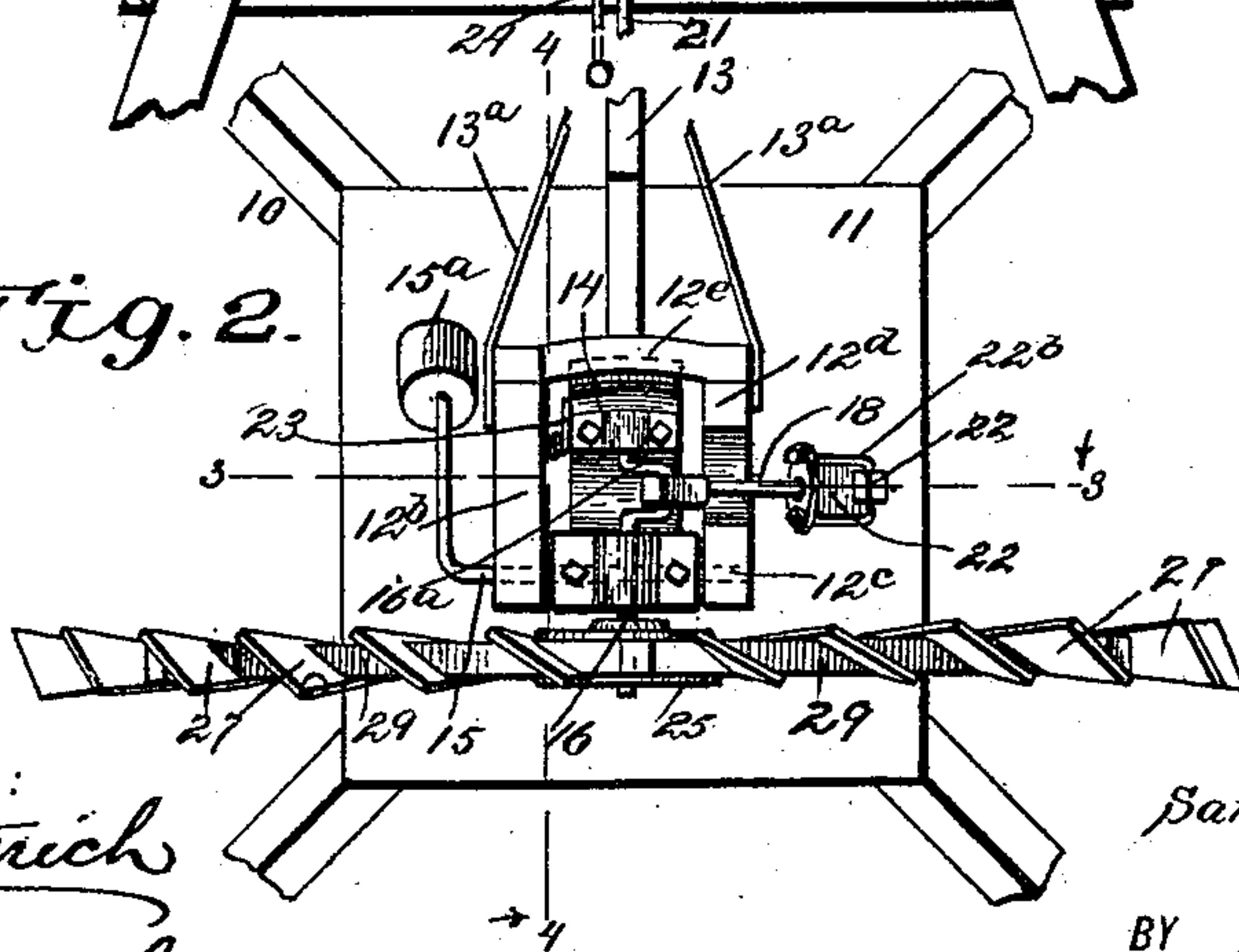


Fig. 2.



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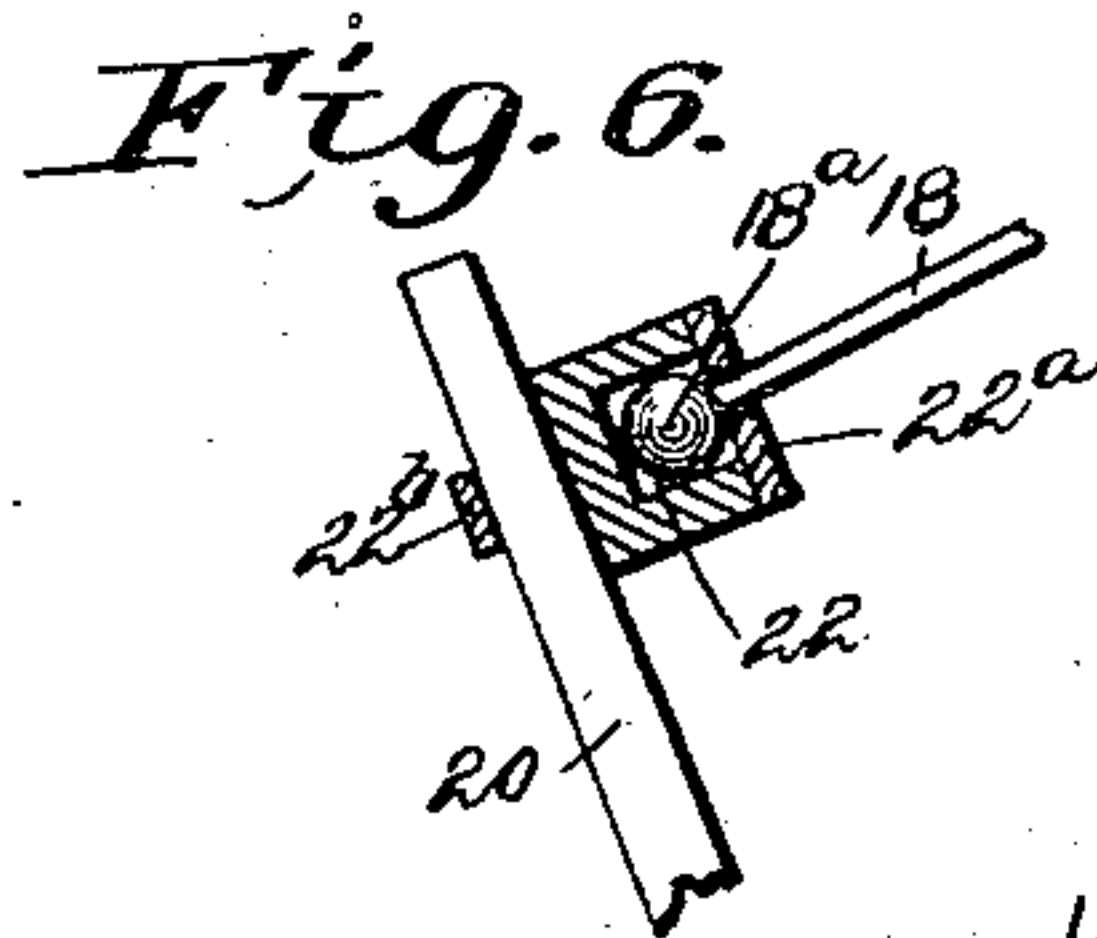
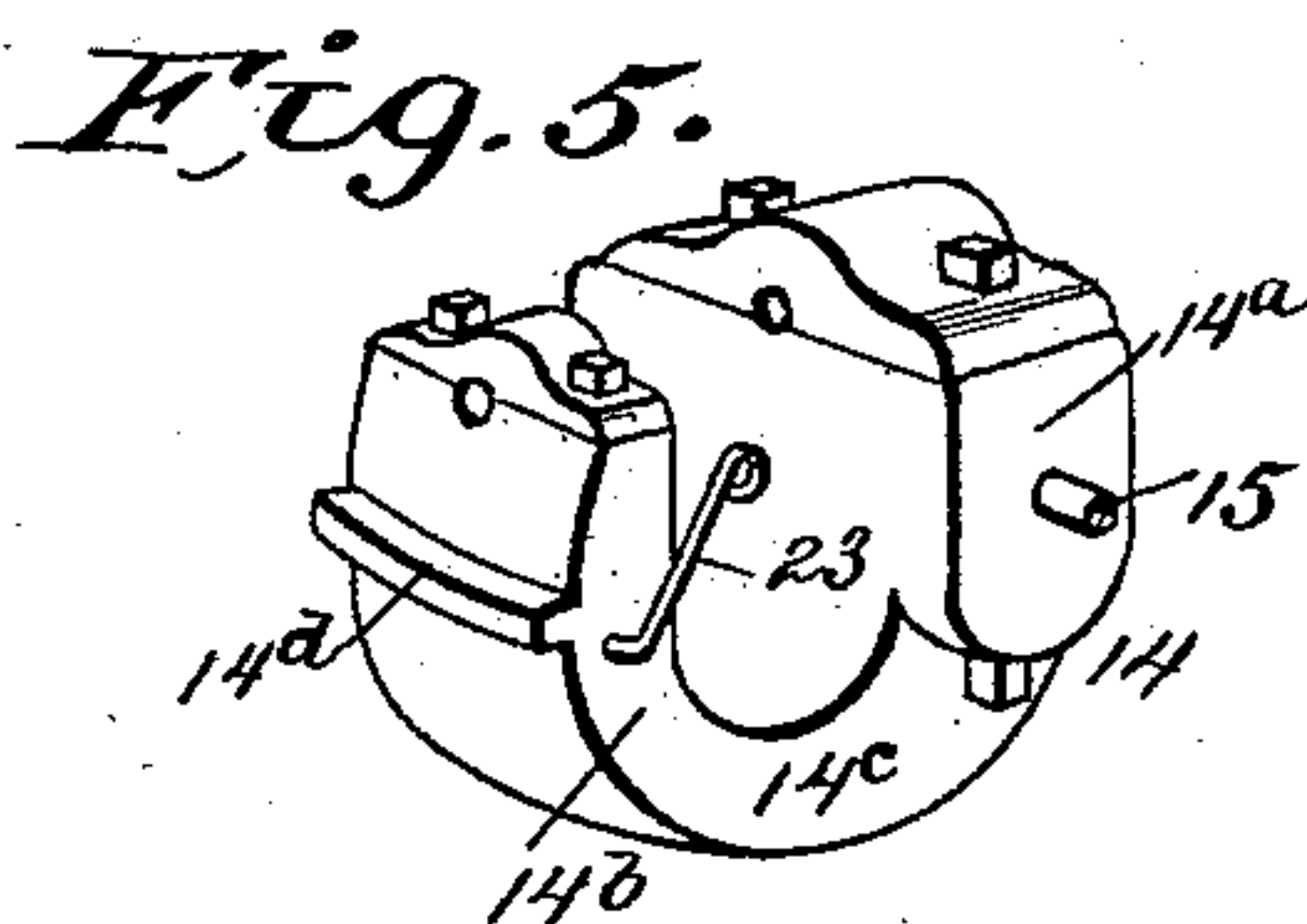
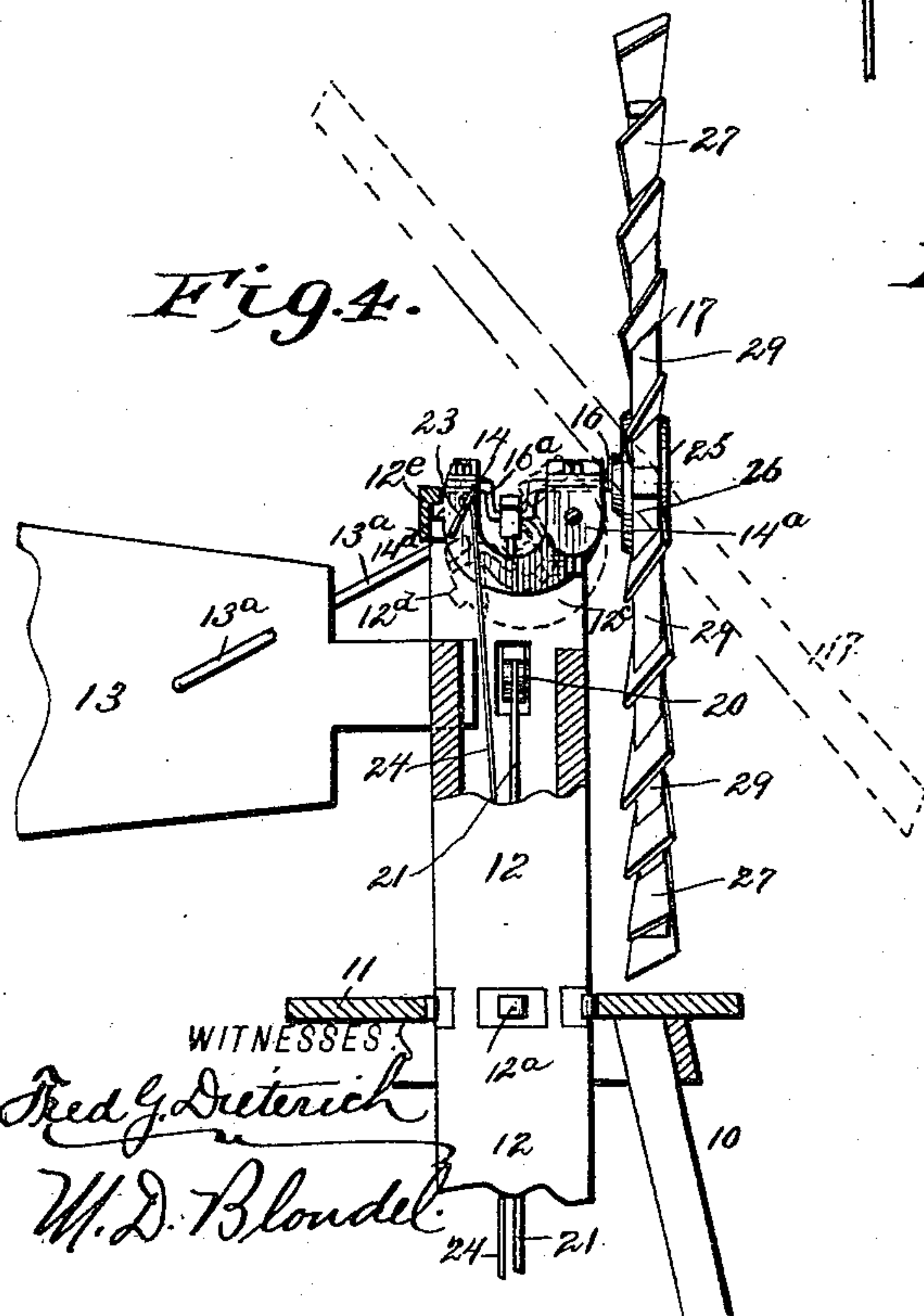
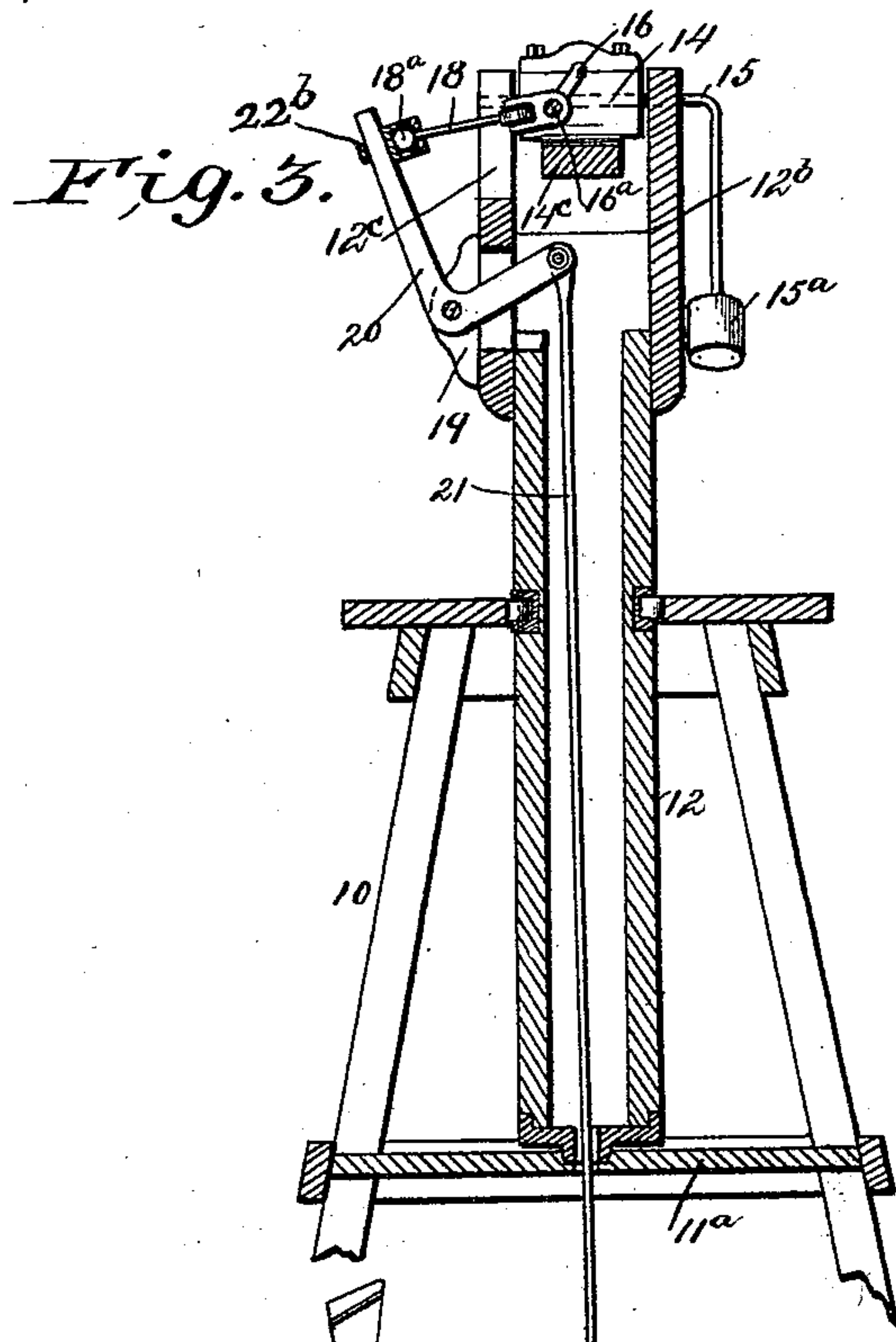
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UNITED STATES PATENT OFFICE.

SAMUEL GRISWOLD, OF DAVENPORT, WASHINGTON.

WIND-ENGINE.

SPECIFICATION forming part of Letters Patent No. 455,201, dated June 30, 1891.

Application filed November 14, 1890. Serial No. 371,468. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL GRISWOLD, of Davenport, in the county of Lincoln and State of Washington, have invented a new and
5 useful Improvement in Wind-Engines, of which the following is a specification.

My invention relates, generally, to wind-engines, and particularly to that class thereof known as "solid wheel", the object of this
10 invention being to provide a wheel of the character described that can be shifted from a vertical to a horizontal position, and vice versa, while in operation and still impart motion to the sucker-rod. The object of this
15 construction is to obtain a uniform rate of speed under varying forces of wind.

A further object of my invention is to provide a wheel of novel structure which shall be very cheap and durable.

20 With these ends in view my invention consists of a vane-casting journaled in a derrick, a wheel-casting pivoted in the vane-casting upon a horizontal shaft, and the wheel attached to the wheel-casting, whereby it can be
25 shifted, as before stated.

My invention consists, further, in certain details of construction and combination of parts, as will be more fully explained, whereby the various objects are accomplished.

30 In the drawings forming a part of this specification, and in which the same numerals indicate the same parts, Figure 1 is a front view of my improved engine. Fig. 2 is a top plan view. Fig. 3 is a section taken on
35 the line 3 3 of Fig. 2. Fig. 4 is a section taken on the line 4 4 of Fig. 2. Fig. 5 is a detail view of the wheel-casting. Fig. 6 is a detail view showing the connection to elbow-lever.

In the practical application of my invention I employ a derrick or tower 10, which is of the usual or any approved pattern and is provided with the usual cap-piece 11. A
40 vertical tubular vane-casting 12 is arranged in the cap-piece 11, and through the bore of this vane-casting are passed the sucker-rod, &c. The vane-casting rests upon a cross-piece 11^a within the derrick, and where the casting passes through the cap-piece its exterior surface is provided with a series of anti-
45 friction rollers 12^a, which bear upon the sides of the opening in the cap-piece and keep the casting steady. A vane 13 is rigidly secured

to one side of the casting and braced by the rods 13^a, extending from the casting to the vane. The upper portion of the vane-casting
55 is preferably made square and formed with a solid vertical projection 12^b, adjacent to the vane and parallel with the same, and opposite said solid projection are formed the vertical arms 12^c and 12^d, which are of the same
60 height as the projection 12^b, the arm 12^d being adjacent to the vane 13.

A wheel-casting 14 is journaled in the upper end of the vane-casting between arm 12^c and projection 12^b and upon the horizontal
65 shaft 15, said shaft being rigid with the wheel-casting, and one end extends through the projection 12^b, and said extended end is curved down and provided with an adjustable governor-weight 15^a. The wheel-casting 14 is
70 essentially U-shaped, consisting of the outer vertical member 14^a, through which the shaft 15 passes, the inner vertical member 14^b, and the horizontal or connecting member 14^c. The horizontal member rests over the bore of the
75 vane-casting, and the entire wheel-casting is adapted to swing vertically upon the shaft 15. A lug or stop 14^d is formed upon the outer side of the member 14^a, said lug engaging the
80 under side of a cross-piece 12^e, connecting the projection 12^a and arm 12^d and limiting the upward movement of the wheel-casting, the downward movement being limited by the said
85 lug striking against the forward side of the vane-casting.

A crank-shaft 16 is journaled in the wheel-casting, the crank-arm 16^a resting between the members 14^a and 14^b, said shaft being arranged at right angles to the shaft 15 and
90 above the same, as clearly shown. The wheel 17 is mounted upon the outer end of the crank-shaft 16 and operates the same when the wheel revolves.

A pitman 18 is attached to the crank-arm 16^a, and upon the opposite end of said pitman
95 is arranged a ball 18^a.

Below the arms 12^c and 12^b and between the same the vane-casting is formed with an aperture, and upon the exterior of the casting and on each side of the aperture are arranged the lugs or ears 19. An elbow-lever
100 20 is pivoted between the lugs 19, the horizontal arm of said lever passing through the aperture in the vane-casting into the bore of

the same, and to the inner end of said arm is secured the sucker-rod 21. The vertical arm of the lever 20 is connected with the pitman 18, a ball-socket 22 being arranged upon said arm, adapted to receive the ball 18^a, which is held in place by means of the plate 22^a and clip 22^b, the clip passing around the arm, and by loosening said clip the socket can be adjusted along the arm, and thus regulate the throw of the sucker-rod.

A vertical arm 23 is secured to one side of the member 14^b of the wheel-casting, and to said arm 23 is secured a brake rod or chain 24, which passes down through the vane-casting and derrick within reach of an operator.

The wheel 17 of my engine consists of the hub-section 25 and the spokes or truss-pieces 26, secured in said hub-section. These constitute a frame-work in which the blades are secured.

The blades 27 are arranged upon rods 28, properly-constructed spacing-blocks 29 being arranged between the blades, the rods 28 passing through the blades and blocks, as shown. One end of the rod 28 is provided with a head, while the opposite end is threaded, and said rods are passed through the spokes or truss-pieces and secured by nuts upon the threaded ends, the blades and blocks having been previously arranged upon the rods. By this construction one section of the wheel being impaired may be removed and repaired without disturbing the other sections. The wheel-casting being pivoted as described, and the wheel being journaled with its center above the pivotal shaft of the casting, the wheel has a tendency to move to a horizontal plane when the force of wind increases, and thus maintain a uniform rate of speed. The governor-weight will always throw the wheel back to its vertical position when the force of wind is reduced. The universal connection between the crank-shaft and elbow-lever will insure constant operation of the sucker-rod while the wheel is in motion. Should it be desired to check the engine, it can ordinarily be done by drawing on the brake rod or chain and throwing the wheel out of the wind into a horizontal plane.

Having thus described my invention, what I claim as new is—

1. In a wind-engine, the combination, with a vane-casting, of a wheel-casting mounted

upon a horizontal shaft journaled in the vane-casting, a crank-shaft journaled in the wheel-casting, an elbow-lever pivoted to the vane-casting, and a universal connection between the crank-shaft and elbow-lever, substantially as shown and described.

2. In a wind-engine, the combination, with a vane-casting, of a wheel-casting journaled therein and adapted to turn vertically upon its journal and move horizontally in unison with the vane-casting, a governor-weight attached to the wheel-casting journal, a crank-shaft journaled in the wheel-casting, an elbow-lever pivoted to the vane-casting, and a universal connection between the crank-shaft and elbow-lever, substantially as shown and described.

3. In a wind-engine, the combination, with a vane-casting, of a wheel-casting mounted upon a horizontal shaft journaled in the vane-casting, a crank-shaft journaled in the wheel-casting, a pitman-rod connected to the crank-arm of the same and having a ball upon its opposite end, an elbow-lever pivoted to the wheel-casting, and a ball-socket secured to the said lever and adapted to receive the ball of the pitman-rod, substantially as and for the purpose described.

4. In a wind-engine, the combination, with a vane-casting, of a wheel-casting, crank-shaft journaled therein, elbow-lever pivoted to vane-casting, pitman-rod secured to crank-shaft and carrying a ball upon its free end, an adjustable socket upon said lever, and a securing plate and clip, all arranged and adapted to operate substantially as shown and described.

5. In a wind-engine, the combination, with a vane-casting, of a wheel-casting, a horizontal shaft journaled in the vane-casting, upon which the said wheel-casting is mounted, the end of said shaft constituting a governor-rod, a crank-shaft journaled in the wheel-casting above the shaft on which said casting is mounted, a wheel mounted upon the outer end of said crank-shaft, an arm secured to the wheel-casting, and a brake rod or chain secured to said arm, substantially as shown and described.

SAMUEL GRISWOLD.

Witnesses:

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