

(No Model.)

2 Sheets—Sheet 1.

W. M. CRAIG.
WINDMILL.

No. 446,630.

Patented Feb. 17, 1891.

FIG. 1.

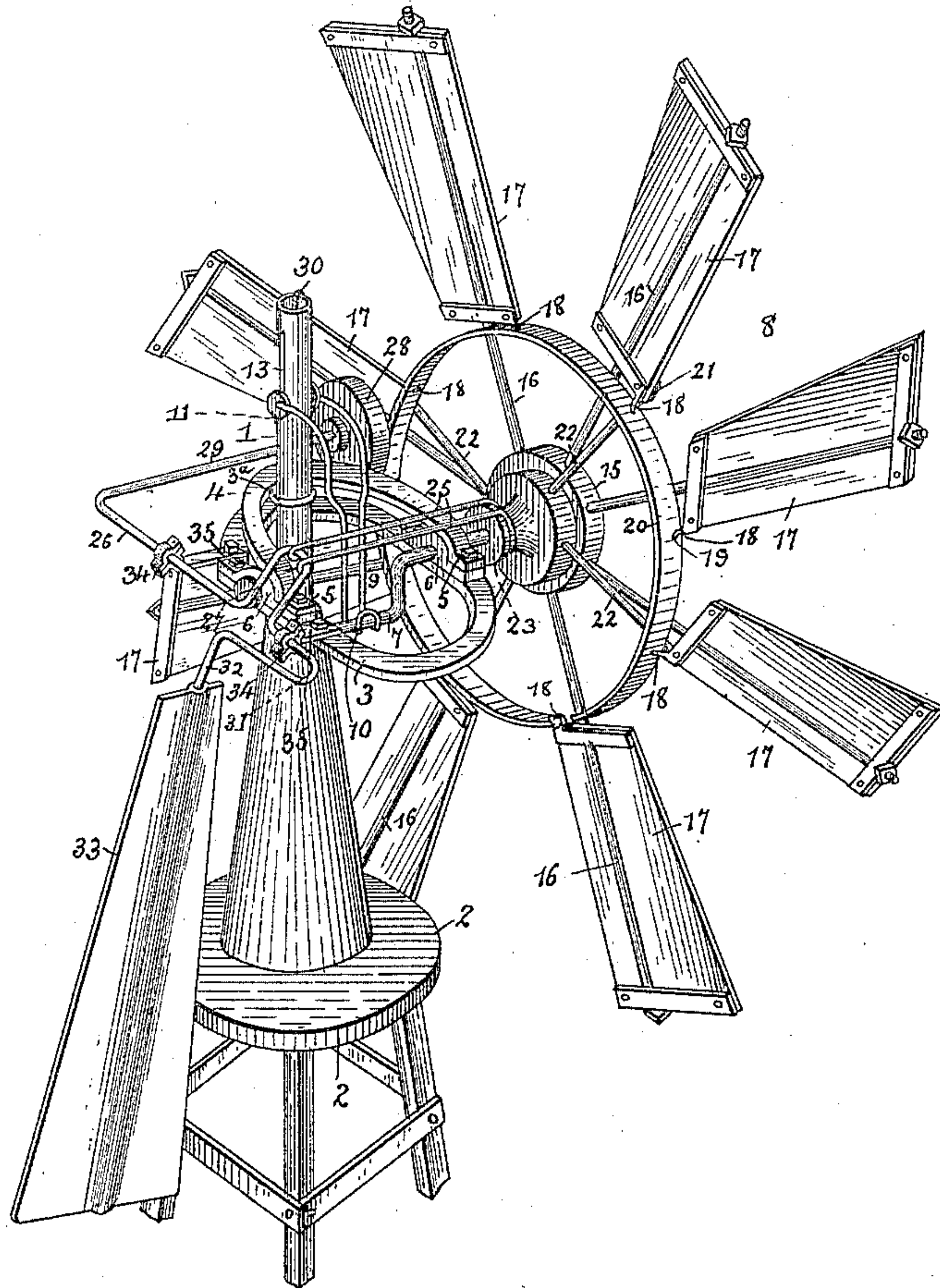
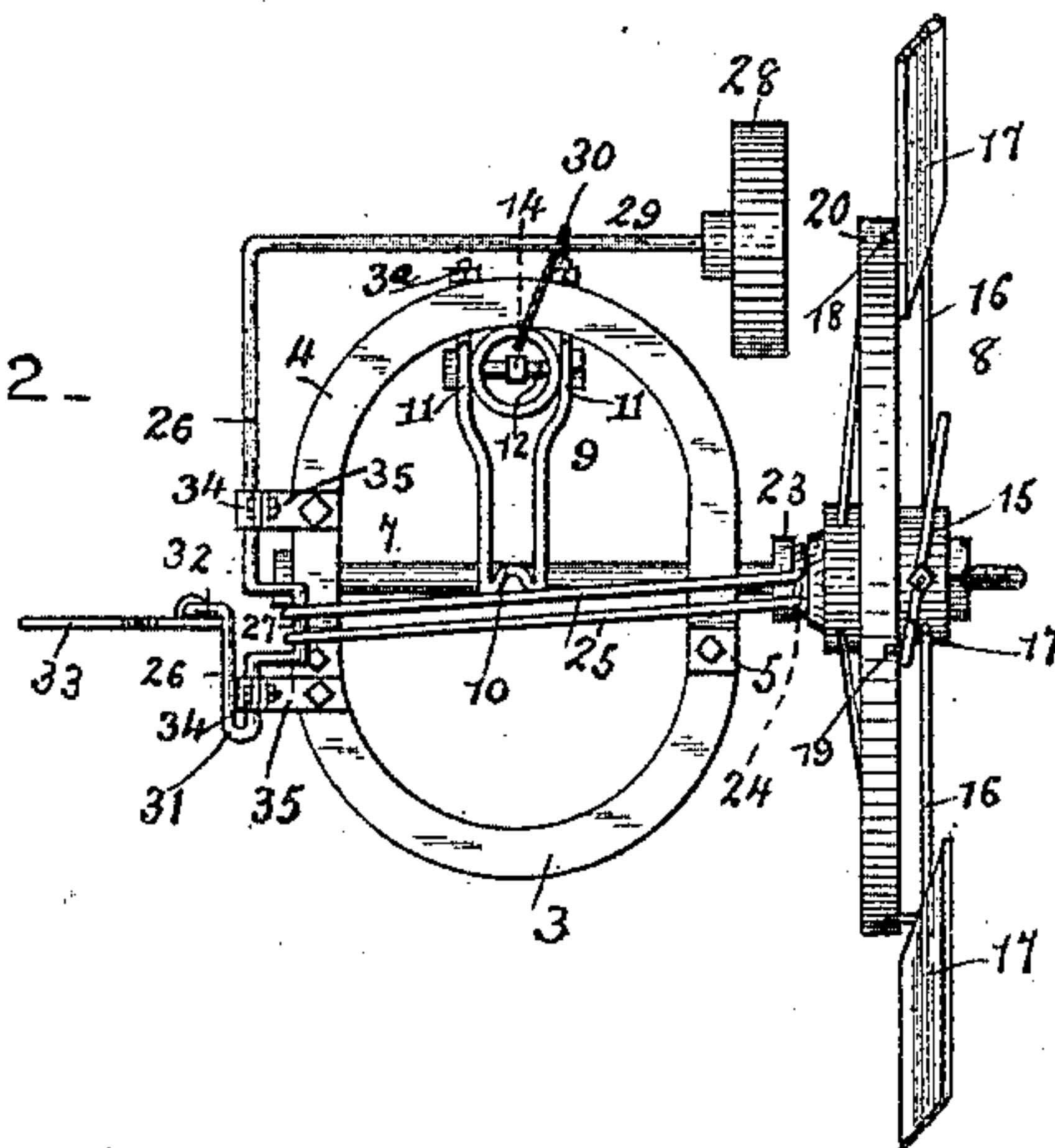


FIG. 2.



Witnesses

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Inventor

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FIG. 3.

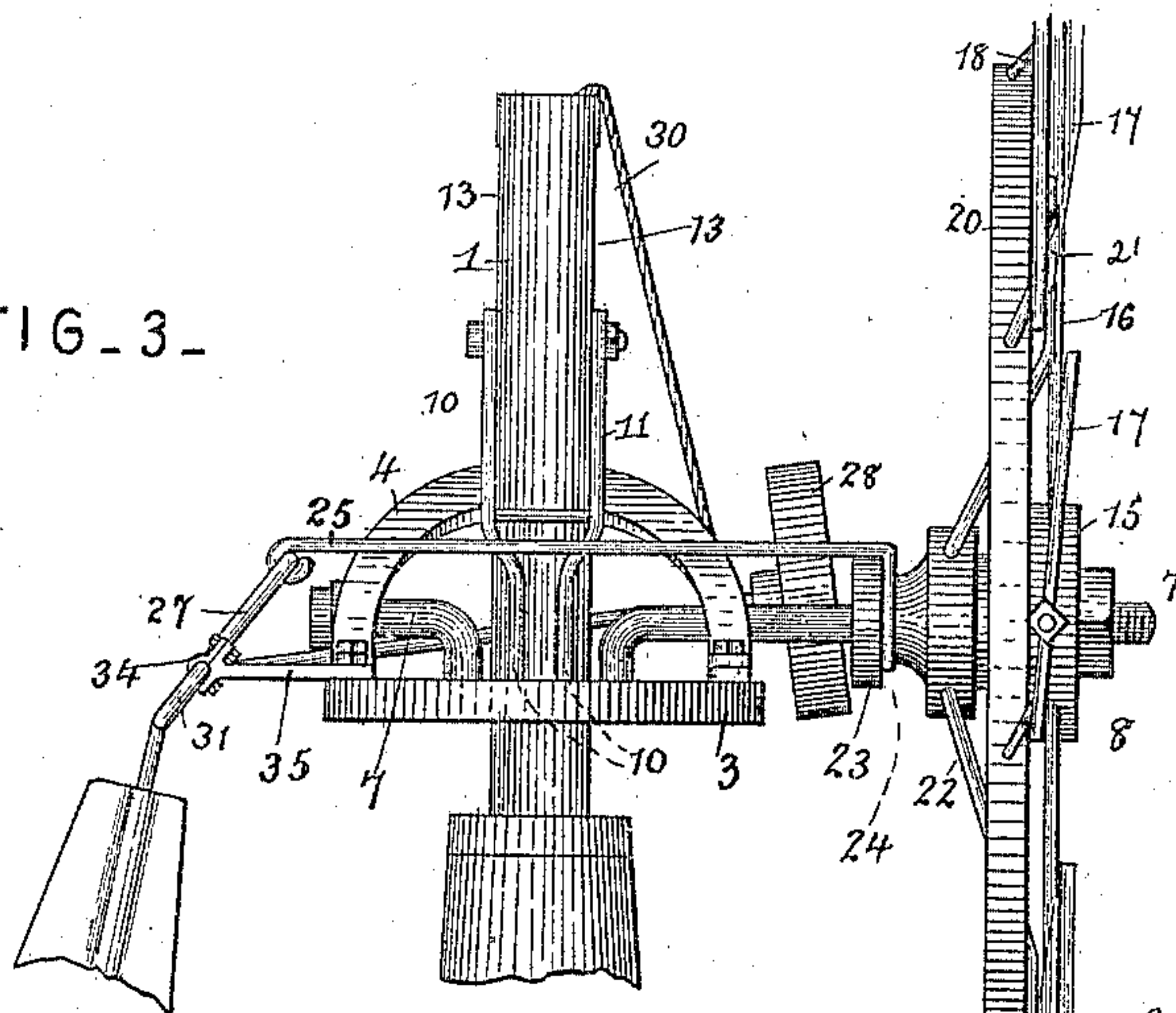


FIG. 5.

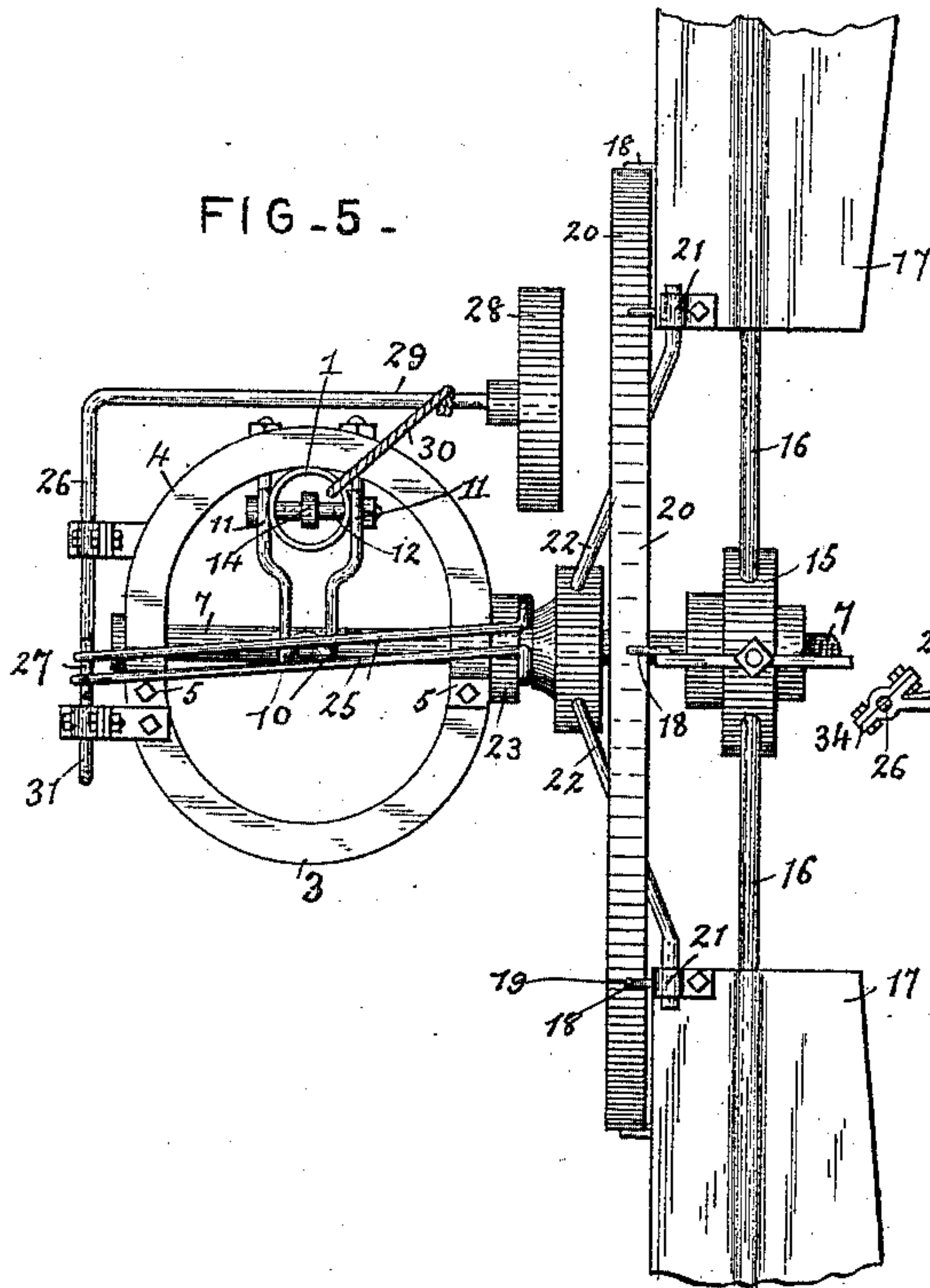
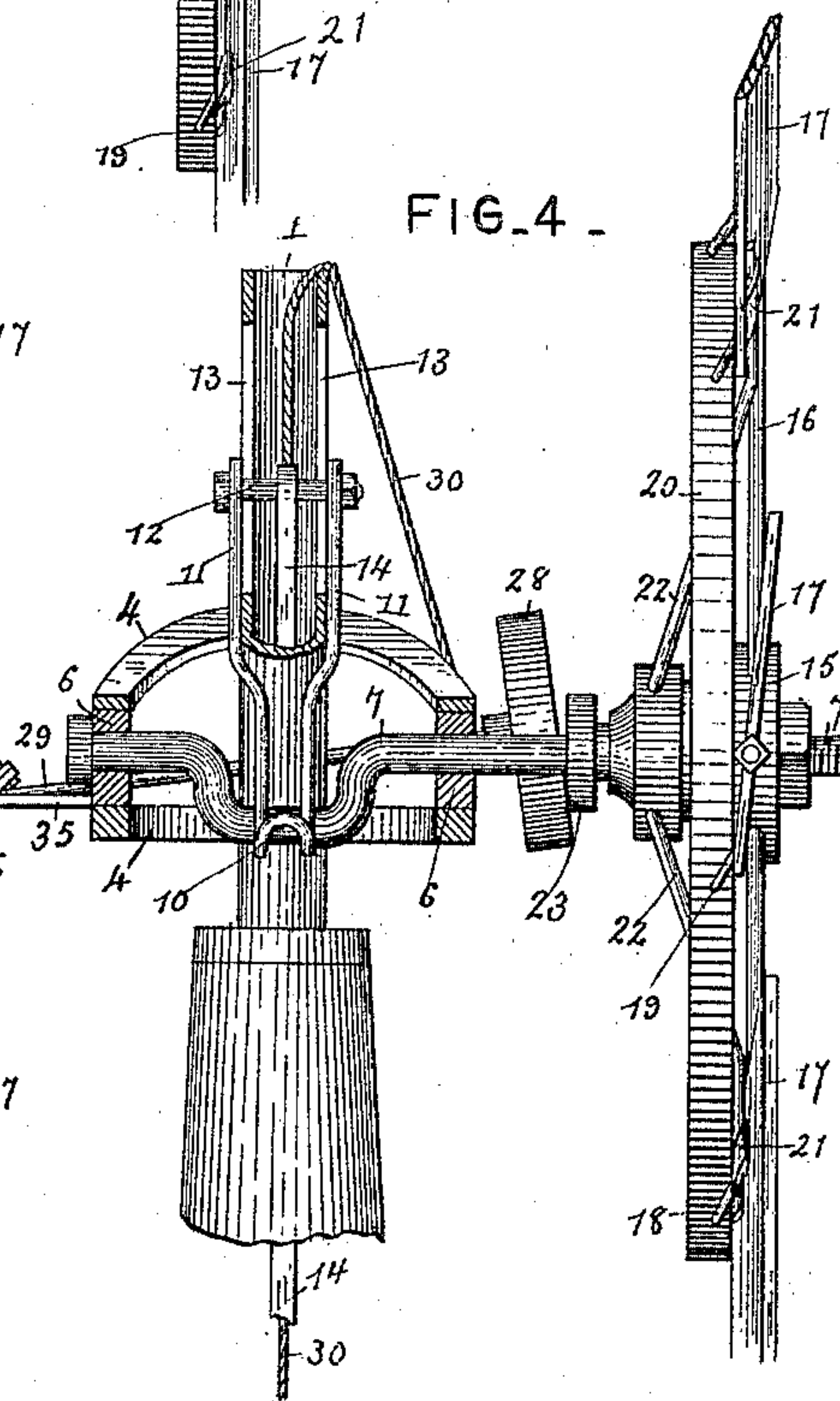


FIG. 4.



Witnesses

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UNITED STATES PATENT OFFICE.

WILLIAM M. CRAIG, OF SANTA YNEZ, CALIFORNIA.

WINDMILL.

SPECIFICATION forming part of Letters Patent No. 446,630, dated February 17, 1891.

Application filed July 1, 1890. Serial No. 357,405. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM M. CRAIG, a citizen of the United States, residing at Santa Ynez, in the county of Santa Barbara and State of California, have invented a new and useful Windmill, of which the following is a specification.

The invention relates to improvements in windmills.

10 The object of the present invention is to produce a simple and inexpensive windmill in which the wheel will not have its position changed to regulate the motion caused by the varying force of the wind, but in which the blades will be turned to accomplish this result.

15 The invention consists in the construction and novel combination and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the claims hereto appended.

20 In the drawings, Figure 1 is a perspective view of a windmill constructed in accordance with this invention. Fig. 2 is a plan view. Fig. 3 is a side elevation. Fig. 4 is a vertical sectional view, the wind-wheel being shown in elevation. Fig. 5 is a plan view similar to Fig. 2, but showing the blades of the wheel operated.

Referring to the accompanying drawings, 30 1 designates a turn-table consisting of a vertical tube that is rotatively mounted in the upper end of a tower 2 and has secured to it a circular horizontal frame 3. The circular frame 3 is open and is supported by an inclined U-shaped brace 4, that is centrally secured to the vertical tube 1 by clips 3^a and has its ends 5 secured to the circular frame, and the latter is provided with oppositely-disposed bearings 6, in which is journaled a crank-shaft 7, upon which the wind-wheel 8 is mounted and to which is connected a pitman 9. The pitman 9 has one end 10 connected to the crank of the shaft 7, and it consists of a pair of rods 10, that are formed integral with each other and have their upper ends 11 bent horizontally and connected by a transverse rod 12, that operates in a longitudinal slot 13 of the tube 1 and has connected to it the lift-rod 14 of the windmill.

50 The wind-wheel 8 consists of a hub 15, radial spokes 16, and blades 17, that are pivotally mounted upon the outer portions of the

spokes and are adapted to be turned upon the spokes into and out of the wind to vary the speed of the wheel. The blades 17 have the inner edges of their lower ends provided with hooks 18, which engage perforations 19 of a rim 20, that connects the blades and causes them to move equally and simultaneously. The alternate blades are provided with eyes 21, in which are arranged the outer ends of radial rods 22, which have their inner ends secured to a sliding sleeve that is mounted upon the crank-shaft 7 and is interposed between the circular frame 3 and the hub of the wind-wheel and is capable of moving longitudinally along the shaft to vary the position of the blades and regulate the speed. The sliding sleeve 23 is provided with an annular groove 24, in which are arranged the ends of operating-rods 25, that have their other ends secured to the arm of a rock-shaft 26. The rock-shaft 26 is arranged at right angles to the crank-shaft 7 and is provided intermediate of its ends with a loop 27, that forms the arm to which the ends of the operating-rods 25 are attached, and it has one end bent laterally and extended parallel with the crank-shaft and provided with a weight 28 and forming a weighted lever 29, which is controlled by a cord 30 to regulate the position of the blades and the speed of the wheel, and the cord 30 enters the top of the tube 1 and passes downward to within easy reach of the operator. The other end of the rock-shaft is returned a short distance at 31 and is bent downward and provides a rod 32, to which a vane 33 is attached, and the said vane depends from the rock-shaft 26 immediately beneath the arm or loop 27 and is in alignment with the operating-rods and the crank-shaft. The rock-shaft 26 is mounted in bearings 34 of brackets 35, which are secured to the side of the circular frame, and they project laterally therefrom and are arranged opposite each other and maintain the rock-shaft in a horizontal position. The vane 33 is controlled by the weighted lever in the well-known manner. When the lever is raised to stop the windmill, the blades are arranged parallel with or in the direction of the vane 33, and the wind is allowed to pass freely through the wheel without rotating the same.

It will readily be seen that the windmill is

simple and inexpensive in construction, is easily operated, and is capable of being readily controlled and regulated, and when it is thrown out of the wind and not in operation the wind is allowed to pass freely through the wheel without disturbing or racking the parts.

From the foregoing description and the accompanying drawings the construction, operation, and advantages of the invention will readily be understood.

What I claim is—

1. In a windmill, the combination of the vertical tube rotatively mounted in a tower, the curved or elliptical frame secured thereto, the U-shaped brace centrally secured to the vertical tube and having its ends secured to and supporting the frame, the crank-shaft mounted on the frame and having its crank centrally arranged in the frame, and the pitman having one end connected to the crank and being composed of the rods having their upper ends bent horizontally and connected with a lift-rod, substantially as described.

2. In a windmill, the combination of the vertical tube rotatively mounted in a tower and provided with a longitudinal slot 13, the circular frame secured to the tube, the crank-shaft mounted in the frame and having its crank centrally arranged therein, the wheel, the rock-shaft having its arm connected with and operating the blades of the wheel, the weighted lever arranged at one end of the rock-shaft, and the vane depending from the other end of the rock-shaft, substantially as described.

3. In a windmill, the combination of the vertical tube rotatively mounted in a tower, the circular frame secured to the vertical tube, the crank-shaft mounted on the frame and having its crank centrally arranged therein, the wind-wheel, the brackets 35, provided

with bearings and extending laterally from the circular frame, the rock-shaft arranged at right angles to the crank-shaft and journaled in the brackets and provided intermediate of its ends with the loop 27 and having at one end a weighted lever arranged parallel with the crank-shaft and provided at its other end with the depending vane, and the operating-rods 25, connecting the rock-shaft with the wheel, substantially as described.

4. In a windmill, the combination of the vertical tube rotatively mounted in a tower and provided with a longitudinal slot 13, the circular frame secured to the tube and provided with bearings, the crank-shaft journaled in the bearings and having its crank centrally arranged in the frame, the pitman having one end secured to the crank and being composed of the rods having their upper ends bent laterally, the transverse rod 12, operating in the slot 13 and connecting the ends of the pitman and being connected with a lift-rod, the wheel arranged at one end of the crank-shaft, the brackets 35, secured to the frame and extending laterally therefrom and being provided with bearings, the rock-shaft mounted in the brackets and provided intermediate of its ends with the loop 27 and having at one end the weighted lever and at the other end the depending vane, and the operating-rods connecting the rock-shaft with the wind-wheel, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

WILLIAM M. CRAIG.

Witnesses:

H. D. DARLING,
JOHN W. CRAIG.