

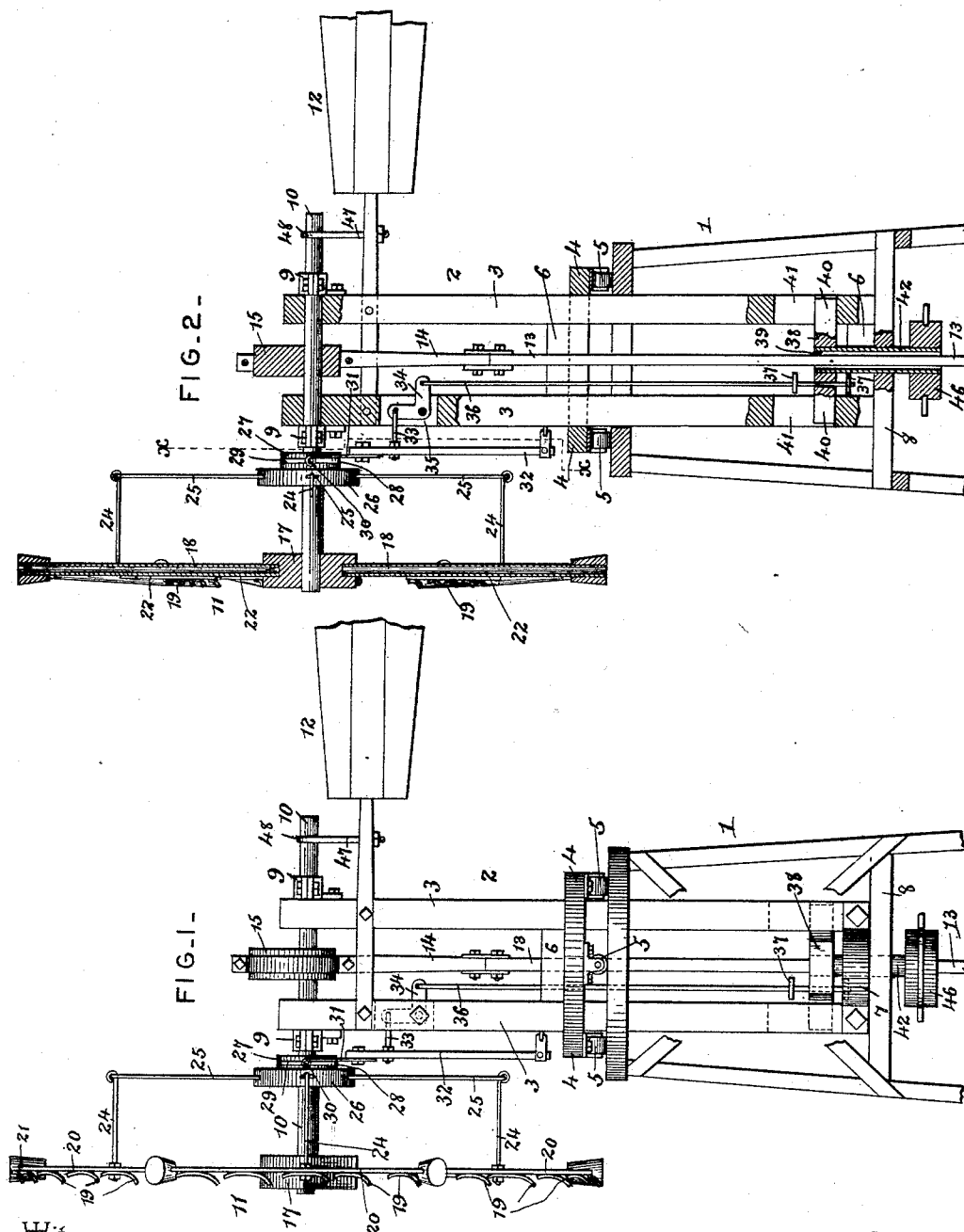
(No Model.)

2 Sheets—Sheet 1.

E. J. BARBER.
WINDMILL.

No. 485,082.

Patented Oct. 25, 1892.



Witnesses

Jas. L. McLathran
J. F. Riley

By his Attorneys,

C. A. Snow & Co.

Inventor

Edwin J. Barber

(No Model.)

2 Sheets—Sheet 2.

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FIG. 4—

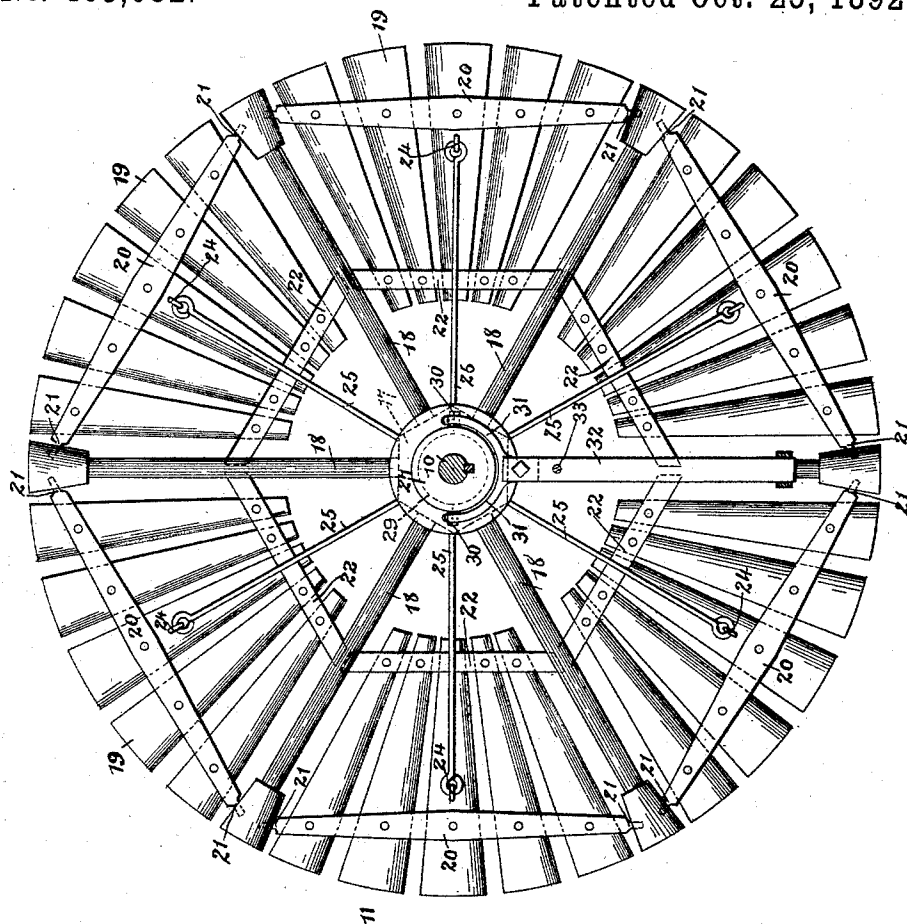
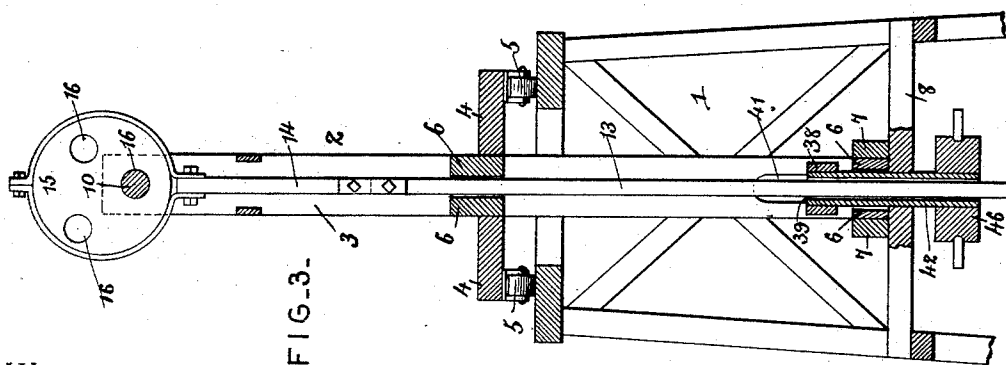


FIG. 3—



Witnesses

Inventor

Jas. K. McLaughlin
By his Attorneys,
S. H. Riley

Edwin J. Barber

Chas. Snow & Co.

UNITED STATES PATENT OFFICE.

EDWIN J. BARBER, OF GOVE CITY, KANSAS, ASSIGNOR OF TWO-THIRDS TO WILLIAM F. KYLE, OF SAME PLACE, AND HERMAN RIPLEY, OF PAGE CITY, KANSAS.

WINDMILL.

SPECIFICATION forming part of Letters Patent No. 485,082, dated October 25, 1892.

Application filed September 30, 1890. Serial No. 366,678. (No model.)

To all whom it may concern:

Be it known that I, EDWIN J. BARBER, a citizen of the United States, residing at Gove City, in the county of Gove and State of Kansas, have invented a new and useful Windmill, of which the following is a specification.

The invention relates to improvements in windmills.

The object of the present invention is to provide a windmill of simple and comparatively-inexpensive construction adapted to automatically regulate itself and close the sections of blades in case of heavy winds.

A further object of the invention is to provide means whereby the stroke of the pump-rod can be readily adjusted.

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 claim hereto appended.

In the drawings, Figure 1 is a side elevation of a windmill constructed in accordance with this invention. Fig. 2 is a central vertical sectional view. Fig. 3 is a similar view taken at right angles to Fig. 2. Fig. 4 is a vertical sectional view on line *xx* of Fig. 2.

Referring to the accompanying drawings, 1 designates a tower, having rotatably mounted therein a frame 2, composed of vertical beams 3, provided midway their length with a casting 4, circular in shape and having a central rectangular opening to receive the frame and provided with rollers 5, adapted to bear on the top of the tower and form a turn-table. The vertical beams 3 of the frame are spaced by blocks 6, arranged at their lower ends and at a point opposite the casting 4, and the said lower ends of the beams 3 are provided with castings 7, mounted in suitable bearings in a cross-piece 8 of the tower 1 and adapted to support the lower end of the rotating frame.

Journalled in suitable bearings 9 at the upper end of the frame 2 is a main shaft 10, extended beyond the sides of the frame and having one end carrying a wind-wheel 11 and the other end provided with a depending bolt arranged to support a vane 12, having its side bars rigidly secured to the frame and arranged

parallel with and slightly below the main shaft 10. The main shaft communicates its motion to a pump-rod 13 by a pitman 14 and an eccentric 15, and the latter is provided with a series of openings 16, arranged at various distances from the center and adapted to regulate the length of the stroke of the pump-rod.

The wind-wheel 11 is composed of a hub 17, radial spokes, preferably constructed of tubular metal, and hinged blades arranged in series or sections and having their outer ends connected by a bar 20, provided at its ends with journals 21, that are mounted in suitable bearings at the ends of the spokes, and it will be seen that as the outer ends of the sections of blades 19 are hinged, increased velocity of the wind-wheel, caused by violent winds, will tend to throw the inner ends of the blades away from the center or hub of the wheel, thereby opening the blades and throwing the mill out of the wind and producing an automatically-regulated device. The blades 19 are slightly curved and are secured near their outer ends to the bar 20, and are similarly secured at their inner ends to a bar 22, extended beyond the sections of blades upon both sides of the same and adapted to engage the spokes 18 of the wheel and prevent the blade swinging inward between the spokes toward the rotating frame. The center blade of a series has secured to it one end of a horizontal rod 24, the other end of which is provided with an eye that engages a similar eye at the lower end of a vertical rod 25, extending from the horizontal rod to a sleeve or disk 26. The sleeve or disk 26 slides upon the main shaft between the wheel and the frame and is adapted to open and close the hinged sections of blades and throw the mill into and out of the wind, and it is feathered or splined to the main shaft and rotates with the wheel and is provided on its inner face with a flange 27, having a circumferential groove 28, in which is arranged a ring 29, provided with lateral projections 30, to which are secured diverging arms 31 of a hinged bar 32, connected by a rod 33 to one arm of a bell-crank lever 34, the other arm of which is connected with the bottom of the tower to enable

the wheel and the operation of the mill to be controlled from below. The bell-crank lever is mounted in an opening 35 in one of the beams 3 of the frame and has secured to its inner arm the upper end of a rod 36, extending to the lower end of the frame and provided with tappets 37, arranged above and below a slide 38, having a central opening 39 to receive the pump-rod 13, and provided with extensions or ends 40, arranged to slide vertically in openings or ways 41 in the beams 3, and the said slide has secured in its central opening the upper end of a tube 42, which forms a guide for the pump-rod, and is provided at its lower end with a grooved disk 46, having connected to it suitable means whereby the slide may be operated from the bottom of the tower. The rotation of the wheel will naturally open the sections of blades and hold the mill out of the wind, and a suitable weight may be connected with the slide 38 to hold the blades into the wind and regulate the rotation of the wheel.

It will readily be seen that windmills constructed in accordance with this invention are simple and comparatively inexpensive in construction and are capable of being automatically regulated, and it will also be seen that the eccentric enables the lift of the pump-rod to be regulated.

The shaft 10 is extended beyond the frame in the direction of the vane, and extending

upward from the vane is a rod 47, which is provided at its upper end with a bearing-eye 48 to receive the shaft, and by this construction the vane is supported and the weight of the wheel counterbalanced. 35

What I claim is—

In a windmill, the combination of the tower 1, a frame 2, with slots in the lower part thereof and supporting a shaft having a wheel thereon with adjustable blades and also having a vane attached thereto, a pump-rod or plunger connected to said shaft of the wheel, a tube 42, surrounding said pump-rod or plunger and having extensions secured to the upper end thereof adjustably extending into said slots in the lower part of frame 2, one of said extensions having a vertical hole there-through, a disk 46, connected to the lower part of the said tube 42 to operate the latter, and a vertical rod 36, connected to the blades of the wheel and movably extending through the said extension having the opening therein and provided with tappets 37, located above and below said latter extension to operate the same, substantially as described. 40 45 50 55

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

EDWIN J. BARBER.

Witnesses:

DANIEL J. COY,
C. H. COLE.