No. 656,921. Patented Aug. 28, 1900.

J. E. ALBERS.

WINDMILL WHEEL.

(Application filed Apr. 14, 1900.)

(No Model.)

Fig. 1,

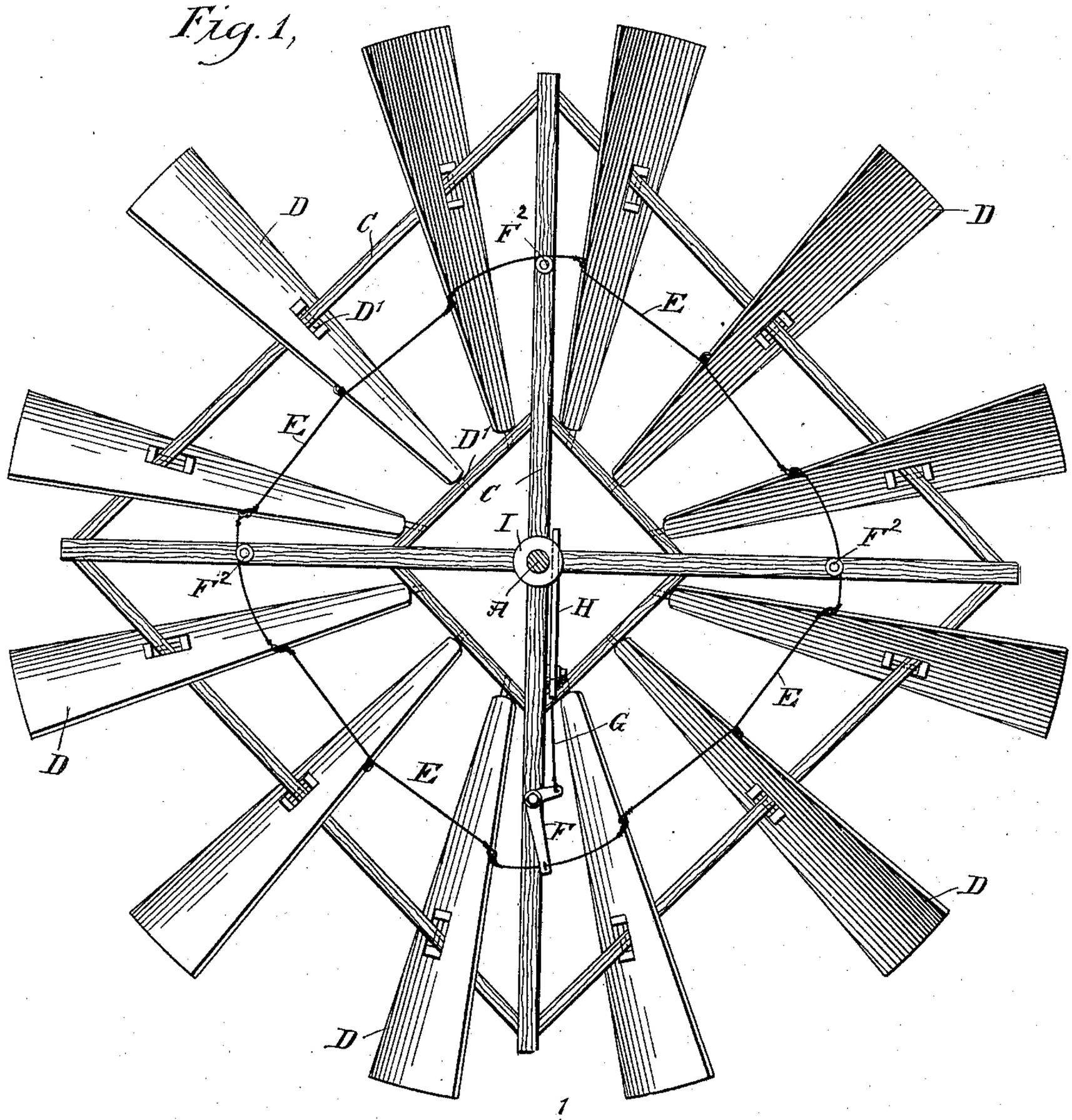
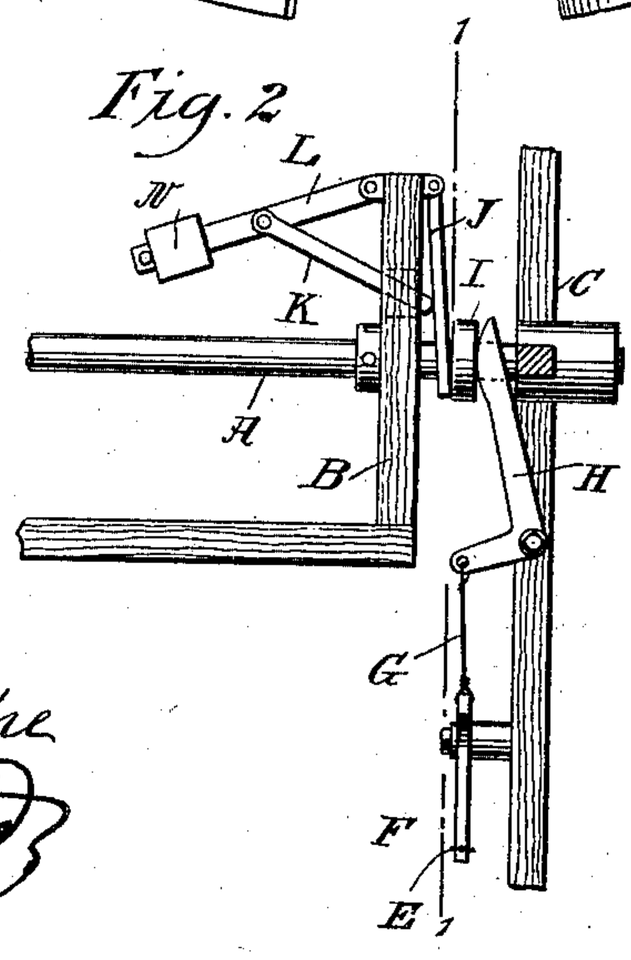


Fig. 2.



WITNESSES:

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JOHN ERWIN ALBERS, OF WISNER, NEBRASKA.

WINDMILL-WHEEL.

SPECIFICATION forming part of Letters Patent No. 656,921, dated August 28, 1900.

Application filed April 14, 1900. Serial No. 12,858. (No model.)

To all whom it may concern:

Be it known that I, JOHN ERWIN ALBERS, a citizen of the United States, and a resident of Wisner, in the county of Cuming and State of Nebraska, have invented a new and Improved Windmill-Wheel, of which the following is a full, clear, and exact description.

The object of the invention is to provide a new and improved windmill-wheel which is simple and durable in construction and arranged to allow the operator to readily set the wings at any desired angle, according to the force of the wind, to insure uniform running of the wheel in light or heavy winds and without requiring turning of the wheel out of the direction in which the wind is blowing.

The invention consists of novel features and parts and combinations of the same, as will be fully described hereinafter and then pointed out in the claims.

A practical embodiment of the invention is represented in the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in both the views.

Figure 1 is a rear face view of the improvement with part in section on the line 1 1 in Fig. 2, and Fig. 2 is a side elevation of the same with part in section.

The wind-wheel shaft A is mounted to turn in suitable bearings B on a tower or other support forming part of the windmill. On the shaft A is secured a skeleton wheel-frame C, on which are pivoted the usual wings D, having their pivots D′ extending radially, as is plainly indicated in Fig. 1. The several wings D are connected with each other by links E, some of which pass over pulleys or friction-rollers F^2, carried by the skeleton frame C. One of the links is pivotally connected with a bell-crank lever F, fulcrumed on the skeleton frame and connected by a link G with a bell-crank lever H, likewise fulcrumed on the skeleton frame and resting against a sleeve I, mounted to slide longitudinally on the wind-wheel shaft A. A forked arm J, pivoted on the bearing B, engages the sleeve I on the side opposite the one engaged by the bell-crank lever H, and this arm J is pressed on by the footpiece K of a lever L, fulcrumed on the bearing B and carrying a weight N, adapted to be adjusted on the lever L and secured thereon in any desired position. The footpiece K is mounted to slide in a bearing in the bearing B, as indicated in dotted lines in Fig. 2. Now it will be seen that the weight on the lever L causes the footpiece K to exert pressure on the arm J, so as to move the sleeve I against the bell-crank lever H and cause the latter to pull on the link G on the bell-crank lever F, so that said bell-crank lever pulls on the link E, with which it is connected, and as said link E forms one of the links connecting all the wings with each other it is evident that the wings are pulled into an angular position—that is, into the wind—to cause the latter to turn the wind-wheel.

By shifting the weight N on the lever L more or less pressure can be exerted by the lever L and the footpiece K on the arm J to insure setting of the wings D to an angle of more or less degree, according to the force of the wind. Thus for a very strong wind the weight N is shifted toward the fulcrum of the lever, so that the wings D are set almost in line with the direction of the wind. For a light wind the operator shifts the weight N outward on the lever L, away from the fulcrum thereof, so as to cause a setting of the wings into a decided angular position relatively to the direction of the wind. Thus a uniform rate of speed is assured in both a light and heavy wind, as the wings are set correspondingly to the force of the wind blowing at the time.

By the arrangement described it is not necessary to turn the wheel out of the wind in case the latter blows very strong, and consequently the wind-wheel is not unduly strained, as is so frequently the case in windmills heretofore constructed.

Instead of connecting the wings with each other by the links E and using a single bell-crank lever F, I may actuate each wing or a number of connected wings by such crank-lever.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

1. In a wind-wheel, the combination of a shaft, a skeleton frame secured on the shaft, wings pivoted on said frame, links connecting the wings with each other, a sleeve slid-

able on the shaft, a bell-crank lever engaging the sleeve, a second bell-crank lever connected with the links of the wings and with the first-named bell-crank lever, a pivoted arm having its free end forked and engaging the sleeve on the side opposite that engaged by the bell-crank lever, and a weighted lever provided with a foot engaging the said arm, substantially as described.

2. In a windmill, the combination with a bearing, a wind-wheel mounted in said bearing and provided with pivoted wings having a link connection with each other, a sleeve slidable on the wind-wheel shaft, and means for operating the wings from the said sleeve, of an arm pivoted to the bearing and engaging the sleeve, and a weighted lever pivoted to the bearing and provided with a footpiece working in a guideway of said bearing and adapted to engage the said arm, substantially as described.

3. A wind-wheel, comprising a wind-wheel shaft, a skeleton frame secured on said shaft, wings pivoted on said skeleton frame, links connecting said wings with each other, a bell-crank-lever connection with said links, a sleeve slidable on the shaft and engaging said bell-crank-lever connection, a pivoted arm engaging the sleeve and a weighted lever provided with a projection engaging the arm to press the sleeve with more or less force in contact with said bell-crank lever, substantially as shown and described.

4. A wind-wheel, comprising a shaft, a skeleton frame secured to the shaft and provided with friction-rollers, wings pivoted on said frame, links connecting the wings with each other, sundry of the links passing over the friction-wheels of the frame, a bell-crank lever pivoted on the frame and pivotally connected with one of the links of the wings, a second bell-crank lever pivoted on the frame and connected by a link with the first-named lever, a sleeve slidable on the shaft and with which the second bell-crank lever engages, a pivoted arm having a forked end engaging the sleeve on the side opposite that engaged by the bell-crank lever, and a weighted lever provided with an inclined foot engaging the said arm, substantially as herein shown and described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOHN ERWIN ALBERS.

Witnesses:
J. H. EMLEY,
G. HENRY ALBERS.