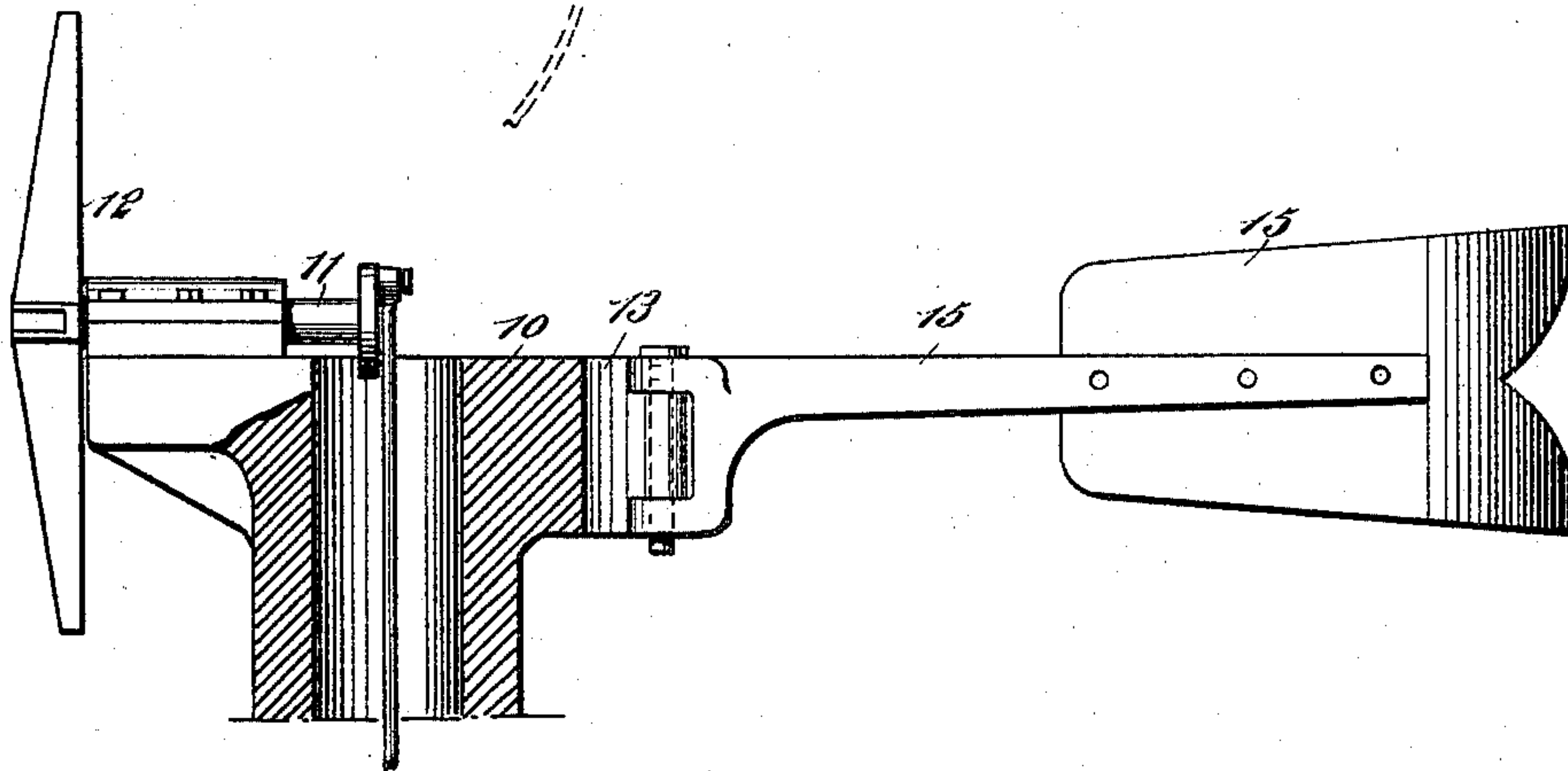
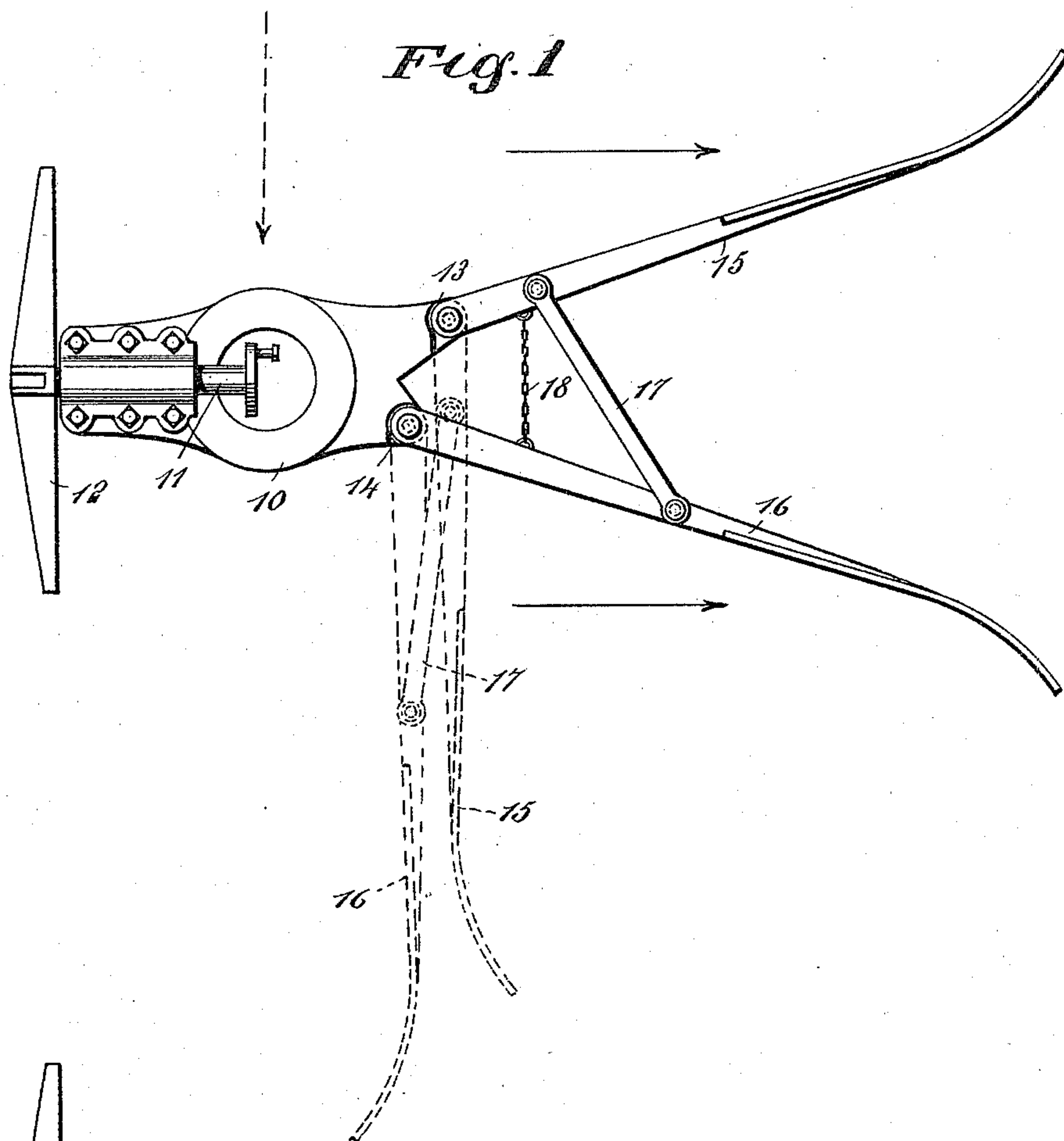


(No Model.)

F. C. RATHBUN.
WINDMILL REGULATOR.

No. 542,537.

Patented July 9, 1895.



WITNESSES:

John A. Bergstrom
H. B. Hutchinson

Fig. 2

INVENTOR

J. C. Rathbun
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UNITED STATES PATENT OFFICE.

FRANK C. RATHBUN, OF ETHAN, SOUTH DAKOTA.

WINDMILL-REGULATOR.

SPECIFICATION forming part of Letters Patent No. 542,537, dated July 9, 1895.

Application filed January 18, 1895. Serial No. 535,366. (No model.)

To all whom it may concern:

Be it known that I, FRANK C. RATHBUN, of Ethan, in the county of Davison and State of South Dakota, have invented a new and Improved Windmill-Regulator, of which the following is a full, clear, and exact description.

My invention relates to improvements in windmill-regulators; and the object of my invention is to produce a very simple and positive device, which may be applied to all windmills which have a horizontal axis, which is adapted to hold the wind-wheel steadily in the wind, which for this reason works without objectionable flaps, which works automatically to swing the wheel out of the wind in case the wind becomes excessively heavy, and which may be applied to the ordinary main casting of a wind-wheel without changing the casting, except to have an additional pivot-lug thereon for the extra vane forming a part of my invention.

To these ends my invention consists of certain features of construction and combinations of parts, which will be hereinafter described and claimed.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar figures of reference indicate corresponding parts in both the views.

Figure 1 is a plan view of my improved regulator, and Fig. 2 is a sectional elevation of the same.

The main casting 10 is substantially like that usually employed in windmill construction, and has journaled on it the usual crank-shaft 11, which has at one end a spider 12 to be secured to the wind-wheel. The construction is of the usual kind and forms no part of my invention. The casting at its rear end is provided with lugs 13 and 14, which are arranged in different vertical planes and to which are pivoted vanes 15 and 16, which may be either straight or curved, but which are preferably curved outward near the ends, as Fig. 1 clearly shows. These vanes may be of any usual construction, and by employing two of them instead of the one large vane, as generally used, the apparatus above the tower is made compact and is better balanced than where the usual construction is employed.

The vanes 15 and 16 are connected by a rod 17, which is pivoted to the vanes and which is placed obliquely to them, so that it will not

permit the vanes to too readily close together, and the vanes are prevented from swinging too far apart by a connecting-chain 18.

With the wind blowing in the direction of the arrows, shown by full lines in Fig. 1, the wind-wheel is in position for work, and the diverging vanes 15 and 16 hold it steadily to place, these vanes spreading apart as the wheel goes into the wind, and if the wind blows too hard the ends close together more or less, being adapted to close completely together, as shown by dotted lines in Fig. 1, and when in this position the wind-wheel is out of the wind, being turned to the position shown by the dotted arrow in Fig. 1.

In connection with my regulator any usual devices may be employed to hold the wheel in the wind.

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

1. The combination with a casting adapted to carry a wind wheel, of vanes pivoted to the rear of the casting in different vertical planes and at different distances from the bore of the said casting, and a connecting rod having its ends pivoted to the vanes, substantially as described.

2. The combination with the main casting adapted to carry a wind wheel and provided at its rear end with lugs in different vertical planes and one in rear of the other, of vanes pivoted to the said lugs and a rod arranged obliquely and having its ends pivoted to the vanes, substantially as described.

3. The combination with a casting adapted to carry a windwheel at one end, of diverging vanes pivoted to the casting in different vertical planes and at different distances from the bore of the said casting, substantially as described.

4. The combination with a casting adapted to carry a wind wheel, and provided at its rear end with lugs in different vertical planes and one in rear of the other, of curved vanes pivoted to the said lugs, a rod arranged obliquely and having its ends pivoted to the vanes, and a flexible connection between the vanes, substantially as described.

FRANK C. RATHBUN.

Witnesses:

WM. HOMER,
W. B. TOBEY.