

(No Model.)

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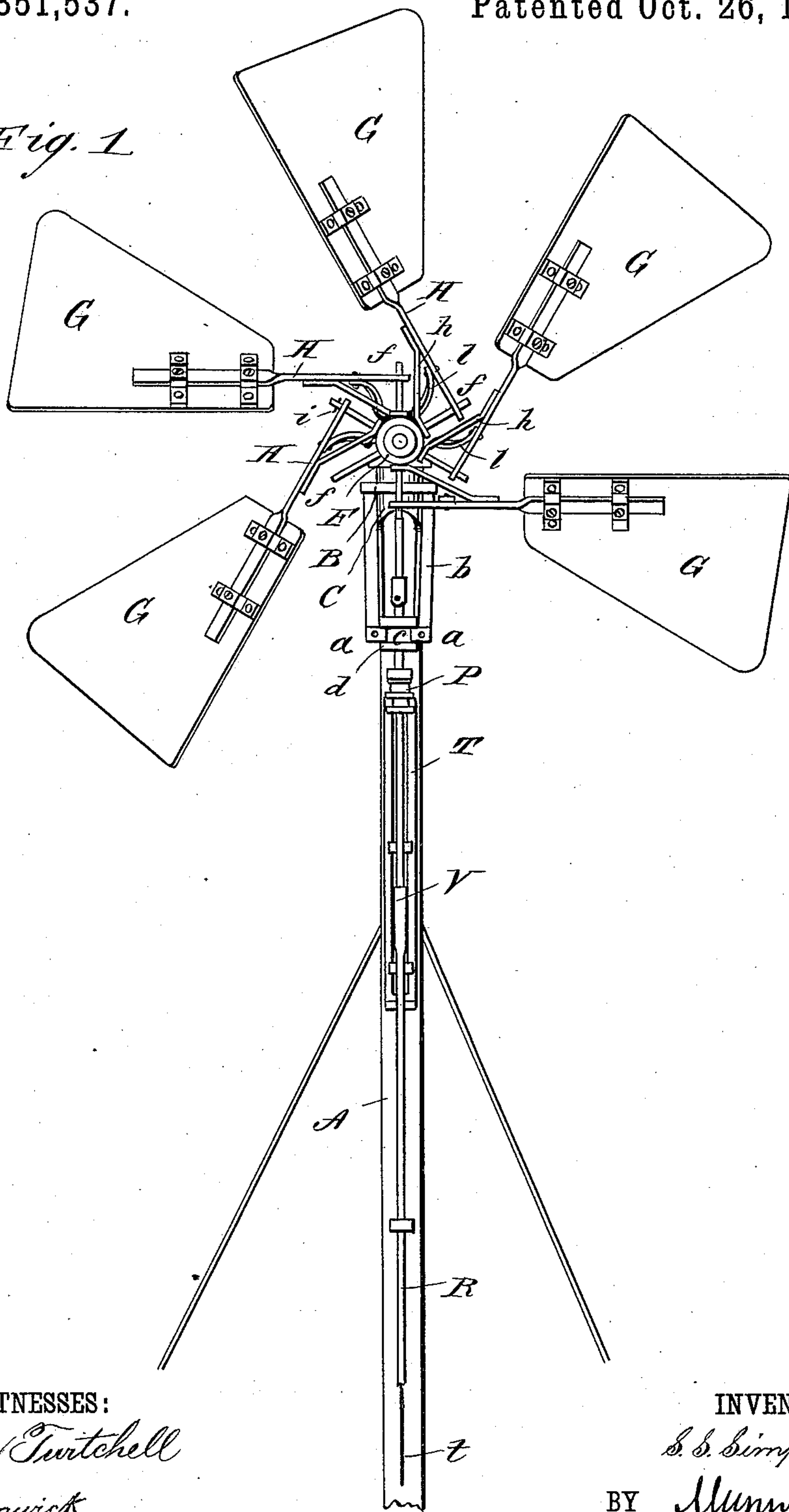
S. S. SIMPSON.

WINDMILL.

No. 351,537.

Patented Oct. 26, 1886.

Fig. 1



WITNESSES:

Dom Twitchell
C. Sedgwick

INVENTOR:

S. S. Simpson

BY

Munn & Co.

ATTORNEYS.

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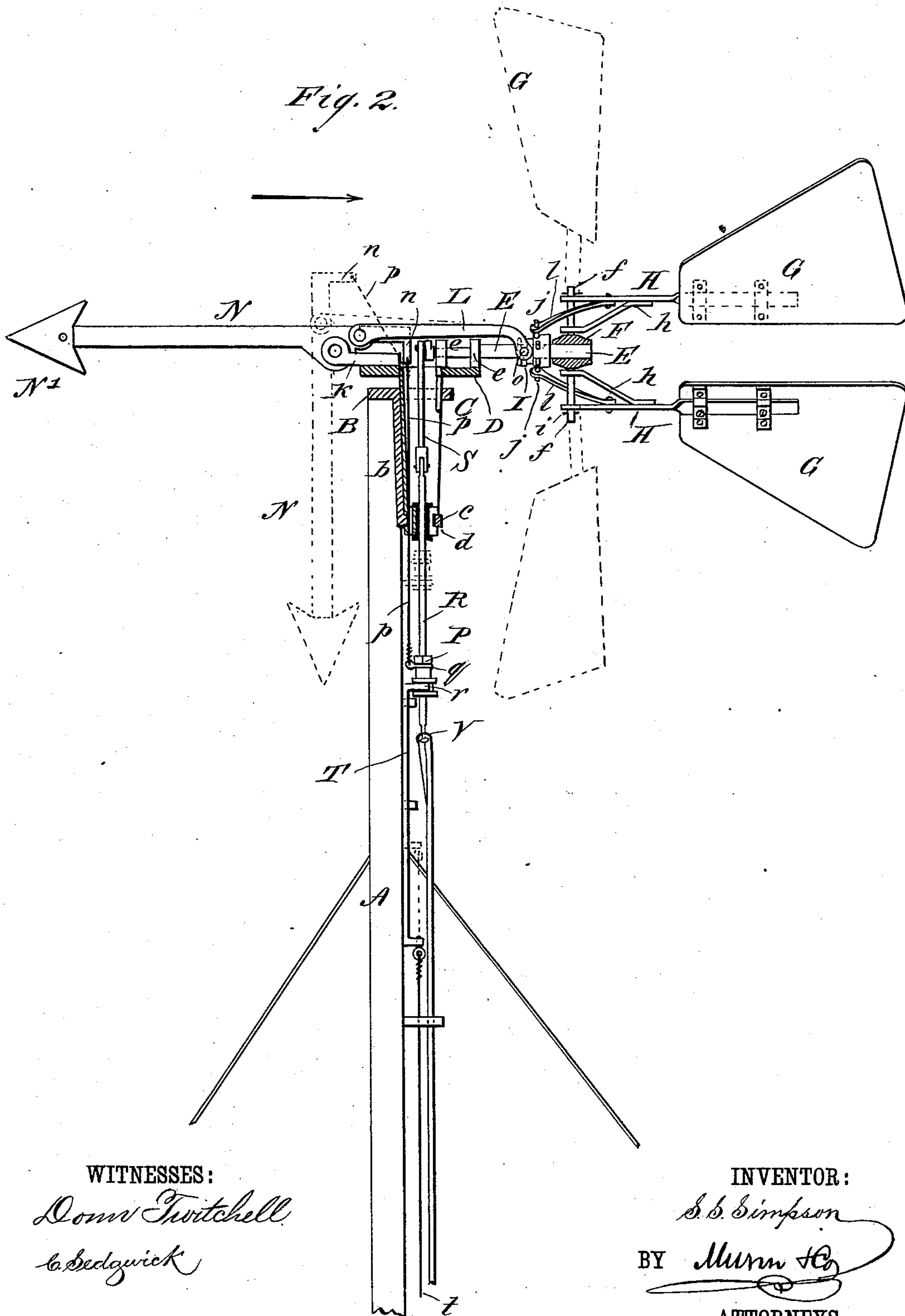
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UNITED STATES PATENT OFFICE.

SAMUEL SANFRANCISCO SIMPSON, OF CLAY CENTRE, KANSAS.

WINDMILL.

SPECIFICATION forming part of Letters Patent No. 351,537, dated October 26, 1886.

Application filed March 26, 1886. Serial No. 196,660. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL SANFRANCISCO SIMPSON, of Clay Centre, in the county of Clay and State of Kansas, have invented a new and Improved Windmill, of which the following is a full, clear, and exact description.

My invention relates to the construction of a windmill having floats that are rigidly connected to arms that are in turn pivotally connected to supports carried by a hub that is fixed upon the crank-shaft, the parts being so arranged that the arms carrying the floats may be expanded to throw the floats into the wind, or such arms may be thrown back in a line substantially parallel with the crank-shaft, thereby throwing the floats backward and causing them to present their edges to the wind.

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

Figure 1 is a rear view of the windmill, one of the floats and its supporting-arm being removed to disclose the construction of the main supporting-pivot. Fig. 2 is a side view of the mill, the pivot and its supporting-plate being shown in central vertical section, and the hub carrying the float-arms being also shown in central vertical section.

The windmill forming the subject-matter of this application could be mounted on any form of tower or mast desired; but it is preferably mounted on a mast made of cast or wrought pipe set in a vertical position and properly guyed, as indicated in Fig. 1, wherein A represents the mast. To the upper end of the mast A there is secured a plate, B, formed with a central aperture and with a downwardly-extending plate, b, at the bottom of which there are arranged outwardly-projecting horizontal arms a a. The main pivot C of the mill is fitted within the aperture formed in the plate B, and guided at its lower end by the arms a a, being held in position by a strap, c, that is held to the arms a a by set-screws, the lower end of the pivot C being formed with an annular groove, d, in which the arms a a and the strap c are fitted. The pivot C carries a plate, D, that is provided with vertical standards e e, and in these standards there are

formed bearings which support and hold the crank-shaft E. Upon the extending end of the crank-shaft E there is a hub, F, formed with radial arms f, as many of such arms being provided as there are to be floats in the mill. The floats G G are rigidly secured to their supporting-arms H in any manner desired, but preferably by means of loops and set-screws, as indicated in the drawings. The arms H are each provided with auxiliary or bracing arms h, and the inner ends of the main arms H and of the auxiliary arms h are apertured, so that they may be fitted upon the arms f of the hub F, being held to place upon said arms by pins i, or by nuts or any other convenient device which will prevent the displacement of the arms. A sliding collar, I, is mounted on the shaft E, between the hub F and the outer standard, e, and this collar I is provided with as many pins j as there are arms f on the hub F, and each of these pins j is connected with one of the arms H by a connecting-link, as l, said links being pivotally connected to the arms H, and loosely mounted on the pins j. To the side of the plate D opposite to that from which the shaft E projects there is secured a bracket, K, and to this bracket K there is pivotally connected a lever, N, to the end of which there is secured a weight, N'. This lever N is connected to the collar I by means of a bifurcated connecting-link, L, the forked end of which straddles the collar, so that the pins or projections o, carried by said forked end, may enter a groove formed in the collar. The short arm of the lever N is formed with an L-shaped projection, n, and to this L-shaped projection n there is secured a wire, p, the lower end of which is fixed to a yoke, q, encircling a collar, P, within which the main connecting-rod R slides. This collar P is engaged by a forked projection, r, which extends from a sliding plate, T, that is secured to the mast, and this plate T is in turn provided with a downwardly-extending wire, t, which is secured to a cleat near the ground. The crank-shaft E is connected to the rod R by means of the pitman or connecting-rod S, and a swivel-joint, V, is arranged in the shaft R, as indicated.

When it is desired to throw the mill into operation, the wire t is released and the lever N allowed to drop to the position shown in dotted

lines in Fig. 2, and this movement of the lever will carry the float-arms forward, so that they will extend at about right angles from the axis of the crank-shaft, thus bringing the floats into a position to be operated upon by the wind, it being of course understood that the floats are set at an angle to the crank-shaft.

When it is desired to throw the mill out of use, the lever N is drawn to the position shown in full lines in Fig. 2, which movement of the lever will throw the collar I up close to the hub F and cause the arms H to swing upon their connection with the arms f until they extend to the rear of the shaft E in lines that are about parallel with the axis of said shaft.

The many advantages of such a mill as I have described are so perfectly apparent that it is needless for me to go into any extended enumeration of such advantages.

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

1. In a windmill, the combination, with a crank-shaft, of a hub carrying radial arms, floats rigidly secured to arms that are pivotally connected to said radial arms, a sliding collar carrying pins, connecting-links extending from said pins to the float-arms, a lever,

and a link extending from said lever to the pin-carrying sliding collar, substantially as described.

2. The combination, with a crank-shaft, of a hub carrying radial arms, floats that are rigidly secured to arms that are pivotally connected to the said radial arms, a sliding collar mounted on the crank-shaft and carrying pins, connecting-links l, extending from said pins to the float-arms, a weighted lever, N, a link, L, connecting the lever and the sliding collar, and an operating mechanism consisting, essentially, of a wire extending to the ground and having an interposed swivel-connection.

3. The combination, with the turn-table of a windmill and a shaft mounted thereon, of a hub mounted rigidly on the shaft and provided with radial arms, float-arms pivotally mounted on said radial arms, a sliding collar on said shaft, connections between said collar and the float-arms, and a weighted lever mounted on said turn-table and having its shorter end connected with the sliding collar, substantially as shown and described.

SAMUEL SANFRANCISCO SIMPSON.

Witnesses:

IRA A. FLOOD,

W. F. CARTER.