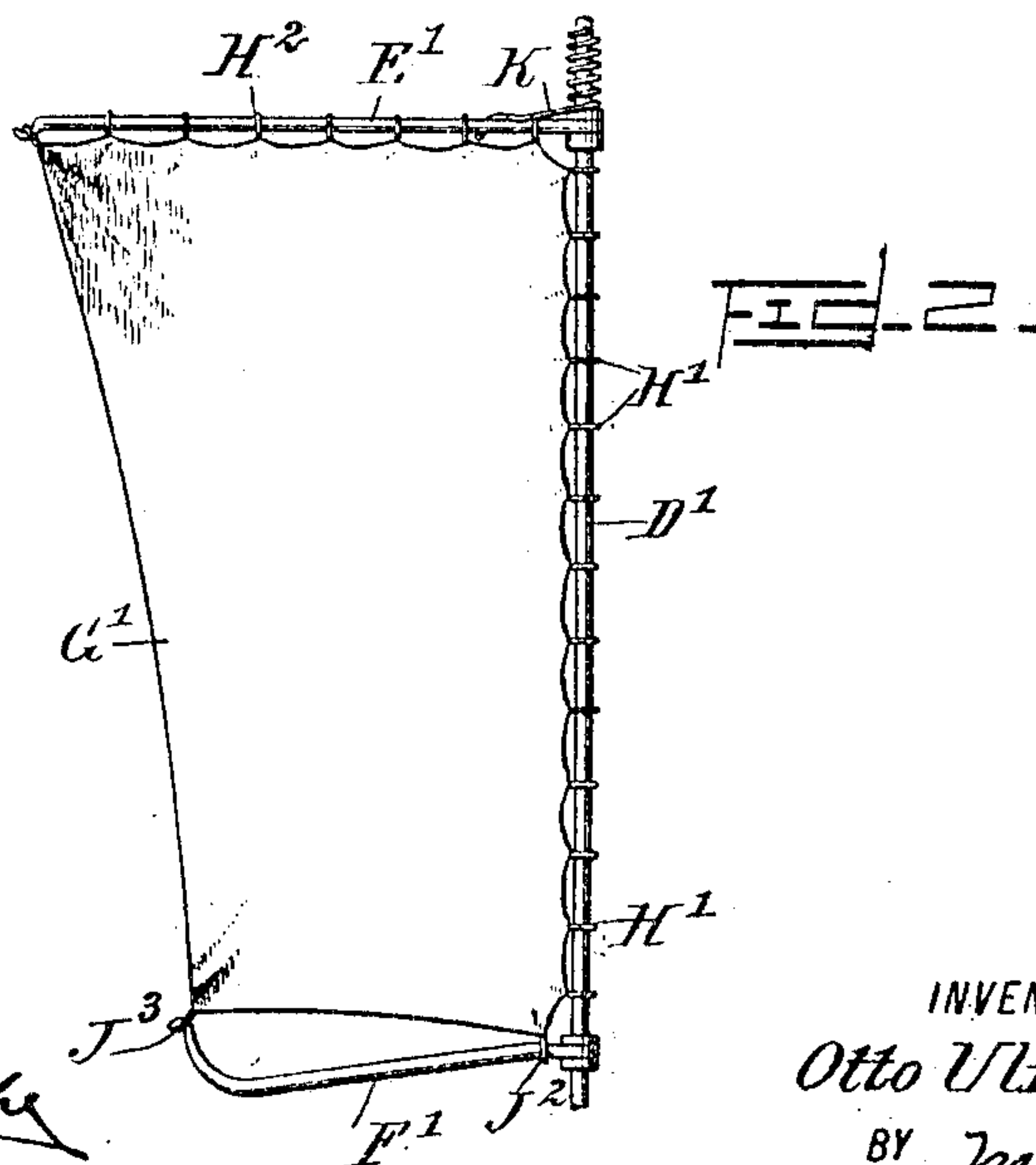
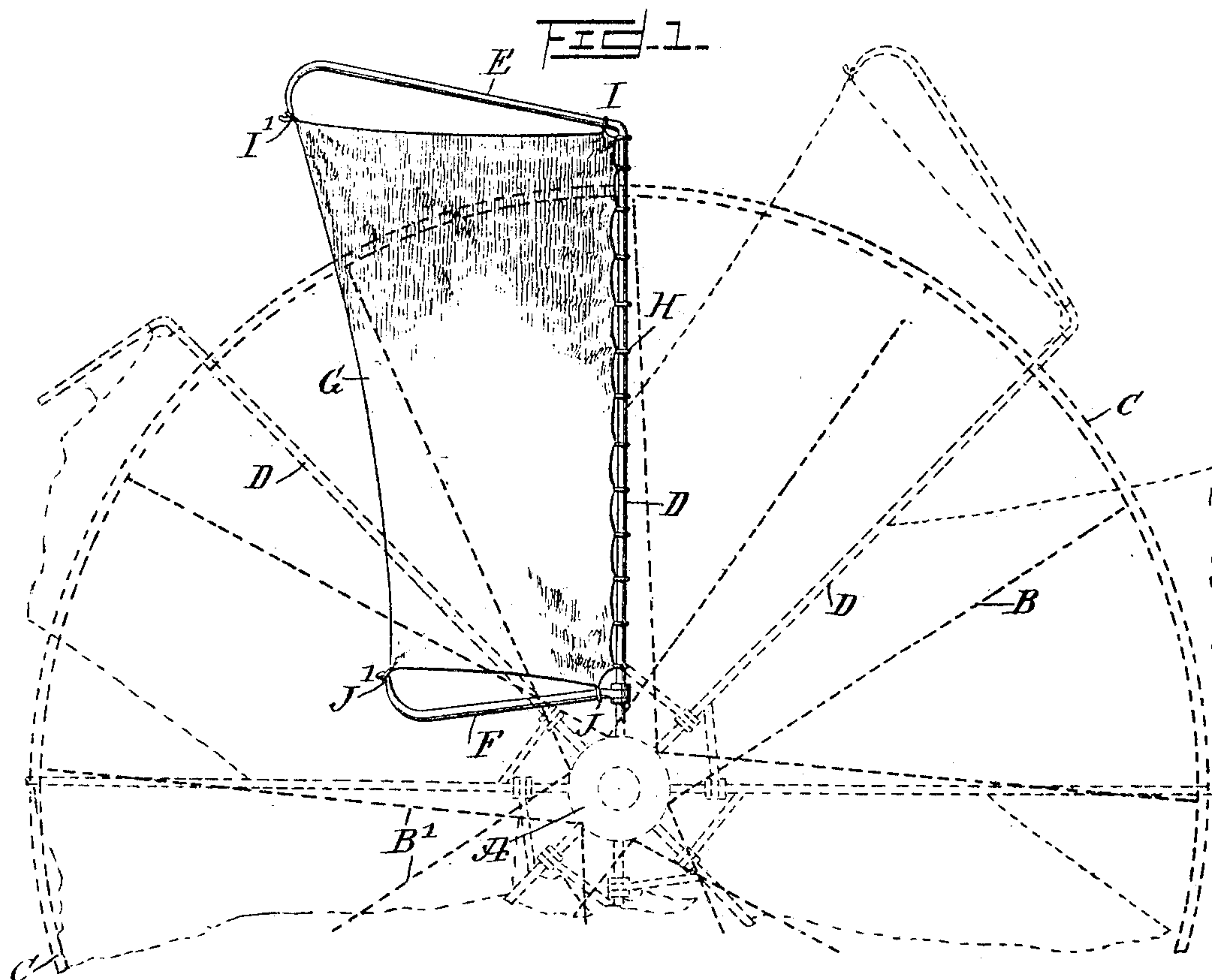


No. 798,845.

PATENTED SEPT. 5, 1905.

O. ULRICH.
WIND WHEEL.

APPLICATION FILED JUNE 5, 1905.



WITNESSES:

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UNITED STATES PATENT OFFICE.

OTTO ULRICH, OF GROSS LICHTERFELDE, NEAR BERLIN, GERMANY.

WIND-WHEEL.

No. 798,845.

Specification of Letters Patent.

Patented Sept. 5, 1905.

Application filed June 5, 1905. Serial No. 263,901.

To all whom it may concern:

Be it known that I, OTTO ULRICH, a subject of the German Emperor, and a resident of Gross Lichterfelde, near Berlin, in the Empire of Germany, have invented a new and Improved Wind-Wheel, of which the following is a full, clear, and exact description.

The invention relates to wind-motors; and its object is to provide a new and improved wind-wheel in which the wings adjust themselves automatically, according to the wind-pressure, to insure a steady uniform running of the wind-wheel both in light and strong winds and requiring no mechanical regulating devices for setting the wings to the proper angle.

The invention consists in novel features and parts and combinations of the same, which will be more fully described hereinafter and 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 face view of the improvement, and Fig. 2 is a face view of a wing of modified form.

The wind-wheel provided with the improvement has the usual hub A, light spokes B, and a rim C, and in the said hub A are secured the inner ends of posts or masts D, having bearings in the rim C. Each of the posts D is provided at its outer end with an arm E and at its inner end with an arm F, and on the said post and the said arms E and F is held a fabric body G, of canvas or other suitable material, in the manner of a sail, as plainly indicated in the drawings. The fabric body G is preferably connected by rings H with the post D and by rings I and I' with the inner and outer ends of the arm E and by rings J and J' with the arm F. The arm F is mounted to turn loosely on the post D, while the arm E is held by torsional power against turning on the said post—that is, as shown in Fig. 1, the arm E is fixed to the outer end of the post D, and consequently can only turn when the strain against the arm E overcomes the torsional resistance thereof.

As illustrated in Fig. 2, the fabric body G' is connected by rings H' with the post D', and both of the arms E' and F' are mounted to swing loosely on the post D'; but the arm E' is pressed on by a spring K, coiled on the upper end of the post D', so that the arm E'

has to overcome the torsional power of the spring K in order to turn on the post D'. As shown in this figure, the upper edge of the fabric body G' is connected by rings H' with the arm E', and the lower edge of the said fabric body is connected by rings J' and J'' with the arm F' at the inner and outer ends thereof.

Each wing is set at the desired angle to the line of rotation of the wind-wheel, and when the wind-pressure strikes the fabric body G it is evident that the wind-wheel turns. On an increase of wind-pressure the arm F swings rearwardly, thus causing the fabric body G to assume a different plane relative to the direction in which the wind strikes the fabric body, the power of the wind being in inverse proportion to the area presented by the fabric body to the wind. It will also be seen that when the wind-pressure exerted against the fabric body G is sufficient to overcome the torsional resistance of the arm E then the latter swings rearwardly correspondingly, and when the wind-pressure decreases the arm E returns to its normal position.

When the wing shown in Fig. 2 is used, a like operation as above described with reference to Fig. 1 takes place, it being understood that the upper arm E' does not turn until the wind-pressure exerted against the fabric body G' is sufficiently strong to overcome the spring K. Thus in either case the arm E or E' does not swing rearwardly until the torsional resistance thereof is overcome.

From the foregoing it will be seen that the wings adjust themselves automatically, according to the wind-pressure, to insure a uniform and steady running of the wind-wheel in both light and strong winds, and mechanical regulating devices for turning the wings in different angles of positions, as heretofore used, are not necessary.

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

1. A wind-wheel wing comprising a fixed post, angular arms on the said post, one of the arms being mounted to turn loosely on the said post and the other being normally held against turning by torsional power, and a fabric body connected with the said post and arms.

2. A wind-wheel wing comprising a fixed post, upper and lower arms extending at angles from the upper and lower portions of the said post, the lower arm being mounted to turn loosely on the said post and the upper arm being held against turning by torsional

power, and a fabric body connected with the said post and its arms.

3. A wind-wheel wing comprising a fabric body, a fixed post on which adjacent edges of the said body are attached, and an arm mounted to turn on the said post and carrying a third edge of the said body.

4. A wind-wheel comprising a hub, a rim, spokes and wings each having a radial post fixed in the said hub, the post having an angular torsion-arm at its outer end, a fabric body connected at adjacent edges with the said post and its arm, and a swing-arm mounted to turn loosely on the post and connected with the lower edge of the said fabric body.

5. A wind-wheel comprising a hub, a rim, spokes and wings each having a radial post

fixed in the said hub, the post having an angular torsion-arm at its outer end, a fabric body connected at adjacent edges with the said post and its arm, a swing-arm mounted to turn loosely on the post and connected with the lower edge of the said fabric body, and a torsion-spring engaging the torsion-arm mounted to turn on the outer end of the said post.

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

OTTO ULRICH.

Witnesses:

WOLDEMAR HAUPT,
HENRY HASPER.