

(No Model.)

2 Sheets—Sheet 1.

T. HATFILL. WINDMILL.

No. 321,292.

Patented June 30, 1885.

Fig. 1,

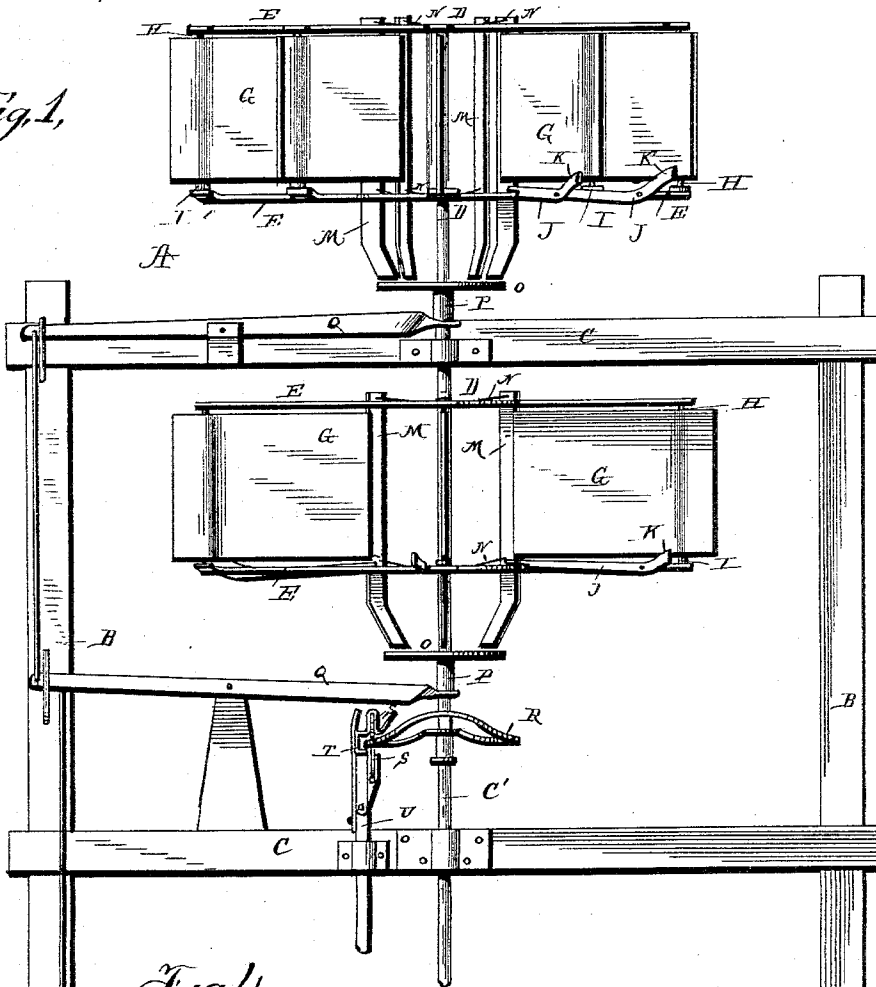
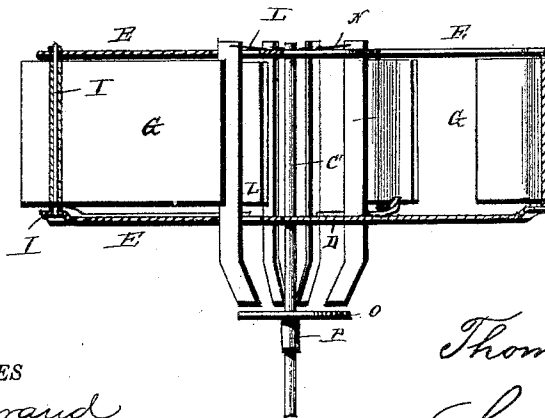


Fig. 4,



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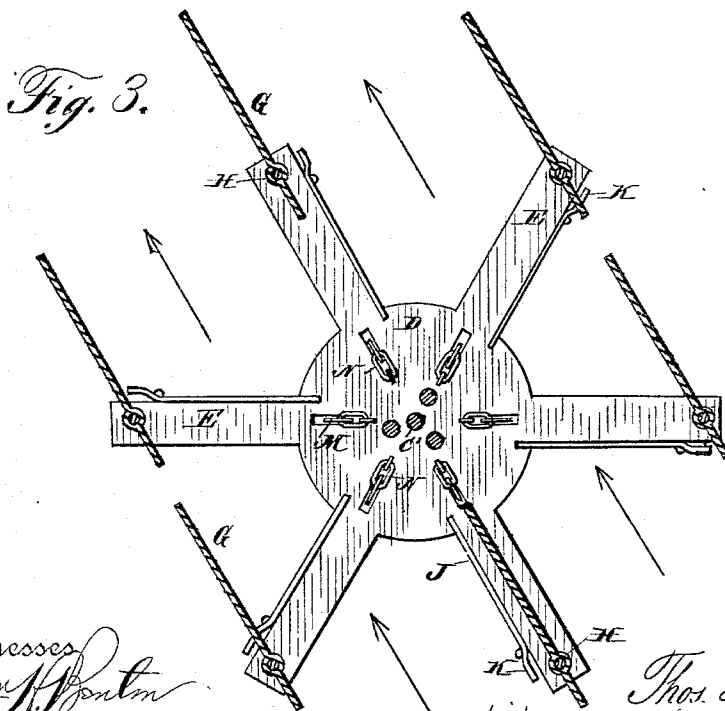
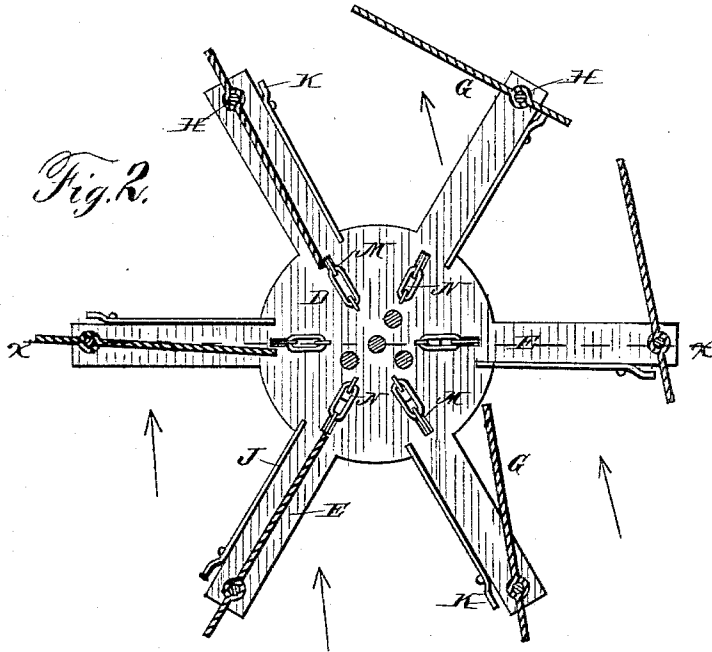
(No Model.)

2 Sheets—Sheet 2.

T. HATFILL,
WINDMILL.

No. 321,292.

Patented June 30, 1885.



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Arthur L. Morsell

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UNITED STATES PATENT OFFICE.

THOMAS HATFILL, OF MOUNT HOPE, KANSAS, ASSIGNOR OF ONE-FOURTH
TO F. E. TRACEY, OF SAME PLACE.

WINDMILL.

SPECIFICATION forming part of Letters Patent No. 321,292, dated June 30, 1885.

Application filed April 24, 1885. (No model.)

To all whom it may concern:

Be it known that I, THOMAS HATFILL, a citizen of the United States, and a resident of Mount Hope, in the county of Sedgwick and State of Kansas, have invented a certain new and useful Improvement in Windmills; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification, and in which—

Figure 1 is a side view of my improved windmill. Fig. 2 is a horizontal sectional view of the same, showing the wings or vanes in position for operation. Fig. 3 is a horizontal sectional view showing the wings or vanes thrown out of gear, or with their edges to the wind. Fig. 4 is a vertical transverse sectional view, taken on the line *x x* in Fig. 2.

The same letters refer to the same parts in all the figures.

This invention relates to windmills; and it has for its object to provide a device of this class which shall possess superior advantages in point of simplicity, durability, and general efficiency.

With these ends in view the invention consists in the improved construction, arrangement, and combination of parts, which will be hereinafter fully described, and particularly pointed out in the claims.

In the drawings hereto annexed, A designates the frame of my improved windmill, which consists, essentially, of side pieces or uprights, BB, connected by cross-pieces CC, which latter are provided with boxes or bearings for the vertical shaft C'.

My improved wind-wheel, which is mounted securely upon the shaft C, is constructed of two circular hub plates or disks, DD, having radial arms EE registering with each other.

GG are the wings or vanes, which consist of rectangular plates pivoted vertically between the upper and lower arms, E, by means of pins or pivots H, at some distance from the outer edges of the said vanes. Washers I are placed upon the lower pivoting-pins, in order to raise the vanes sufficiently to enable them

to turn or swing between the radial arms EE of the upper and lower disks.

To the rear edges of the arms E of the lower disk are pivoted latch-bars JJ, the inner ends of which rest upon the disk D, while their outer ends extend upwardly, so as to form stops K for the outer short ends of the vanes. The upper and lower disks, DD, are provided with slots LL, registering with the radial arms E, and affording bearings for the vertically-sliding lock-bars M, which are connected with the disks by pivoted links N, and the lower ends of which converge toward the central shaft and rest upon a plate, O, mounted upon a sleeve, P, sliding upon the said shaft.

Q is a suitably-arranged forked lever, by means of which the sleeve P and plate O may be moved in an upward direction upon the shaft C, thereby raising or lifting the lock-bars, which, by the action of the pivoted connecting-links N, are at the same time drawn in an inward direction toward the said shaft.

In operation the vanes rest against the lock-bars M while they are exposed to the full force of the wind and until they have passed the center line in which the wind is blowing, when they will swing on their pivots until their outer ends rest against the latches or stops K, thus bringing the vanes into position to be acted upon by the wind twice in every revolution.

In order to throw the device out of gear it is only necessary to raise or lift the lock-bars by the mechanism described, thereby throwing them out of engagement with the vanes, and causing all of the vanes to turn their edges to the wind, as shown in Fig. 3 of the drawings.

When it is desired to start the mill, the locking-bars are brought back into position by lowering the plate O, when the edges of the vanes will engage with them, and the ever-varying course of the wind will catch upon one of them and turn the wheel until each one of the vanes comes into play the same as they did before the locking-bars were raised.

The shaft C is provided near its lower end with a cam-wheel or disk, R, the upper and lower sides of which engage a pair of friction-rollers, SS, suitably journaled to a bracket, T,

at the upper end of a rod, U, arranged to reciprocate vertically in suitable bearings, and from whence the power of the machine may be conveyed to the machinery to be driven.

5 The bracket T may be hinged at the upper end of the rod U, so as to be readily uncoupled from the cam-wheel when required.

In practice one or more of my improved wind-wheels of the same or of different sizes
10 may be used upon the same shaft. In the drawings hereto annexed two have been shown. By properly modifying the construction of the framing, the device may also be successfully used as a water-wheel.

15 From the foregoing description, taken in connection with the drawings hereto annexed, the operation and advantages of this invention will be readily understood.

20 The general construction is simple and durable, the power derived from it is considerable, and the device is easily and efficiently governed and regulated.

Having thus described my invention, I claim and desire to secure by Letters Patent of
25 the United States—

1. In a wind-wheel, the combination, with a suitable frame, of a vertical shaft journaled in the same, a pair of disks or hubs having radial arms, beveled latch-bars pivoted to the rear
30 sides of the lower arms and having stops at their outer ends, vanes pivoted between the upper and lower arms by pivoting-pins near the outer edges of said vanes, and lock-bars

adapted to form rests for the inner ends of the said vanes when in operative position, substantially as and for the purpose herein set
35 forth.

2. In a wind-wheel, the combination of a vertical shaft, a pair of hubs or disks having radial arms, vanes pivoted, as described, between the said arms, latch-bars pivoted to the
40 rear edges of the lower arms, lock-bars arranged to slide vertically in slots in the disks or hubs, and connected with the latter by pivoted links, and mechanism for operating
45 the said lock-bars, substantially as and for the purpose herein set forth.

3. In a wind-wheel, the combination of the central vertical shaft, the disks or hubs having radial arms, the vanes pivoted vertically
50 between the outer ends of the said arms, the pivoted latch-bars, the vertically-sliding lock-bars connected with the disks or hubs by pivoted links, and having converging lower
55 ends, a disk mounted upon a sleeve sliding vertically upon the central shaft and supporting the lock-bars, and a forked lever adapted to manipulate the said sleeve, substantially as and for the purpose herein set forth.

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

THOMAS HATFILL.

Witnesses:

J. D. McATEE,
A. I. HATFILL.