

(No Model.)

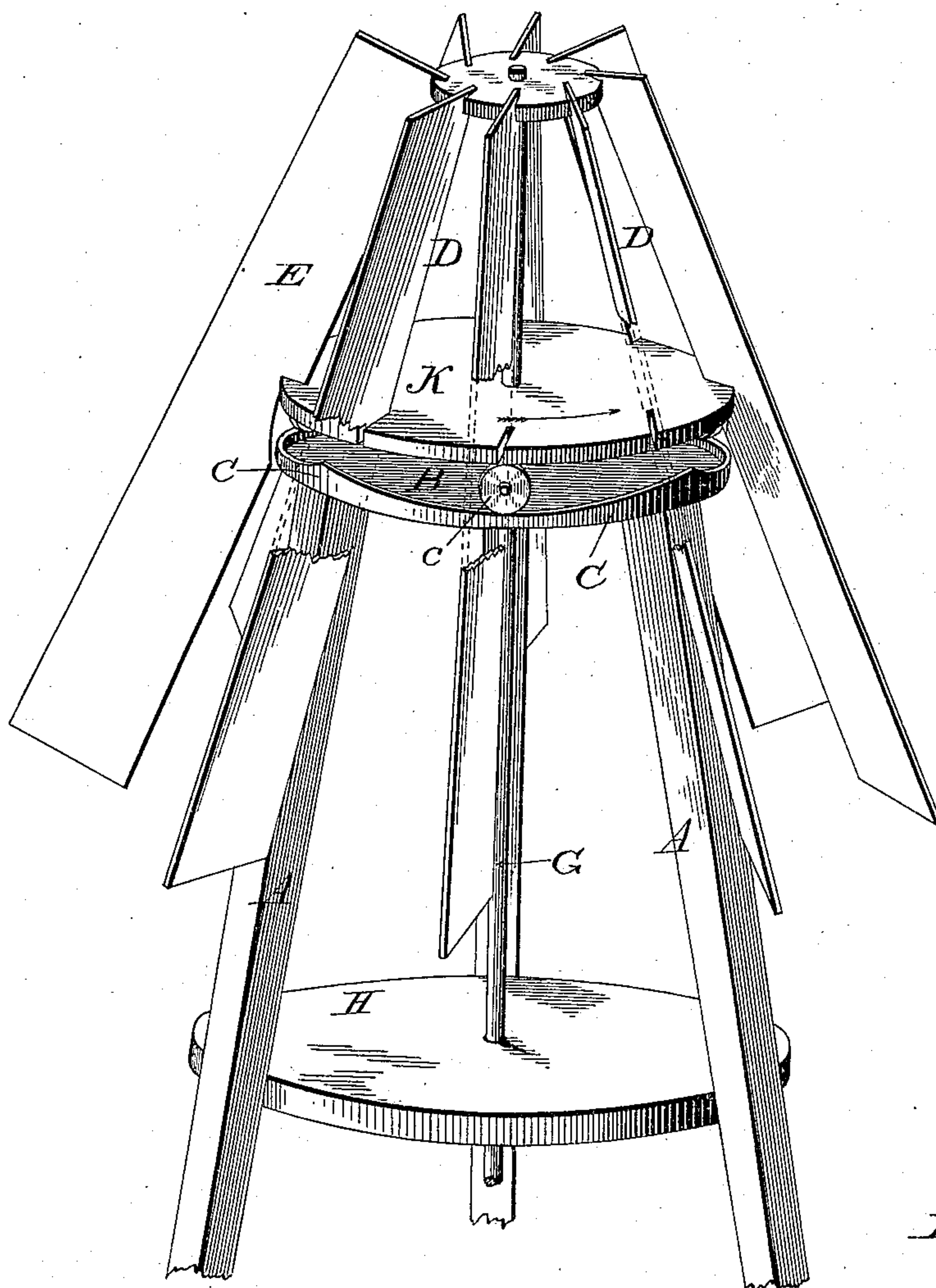
F. W. STARR.

WINDMILL.

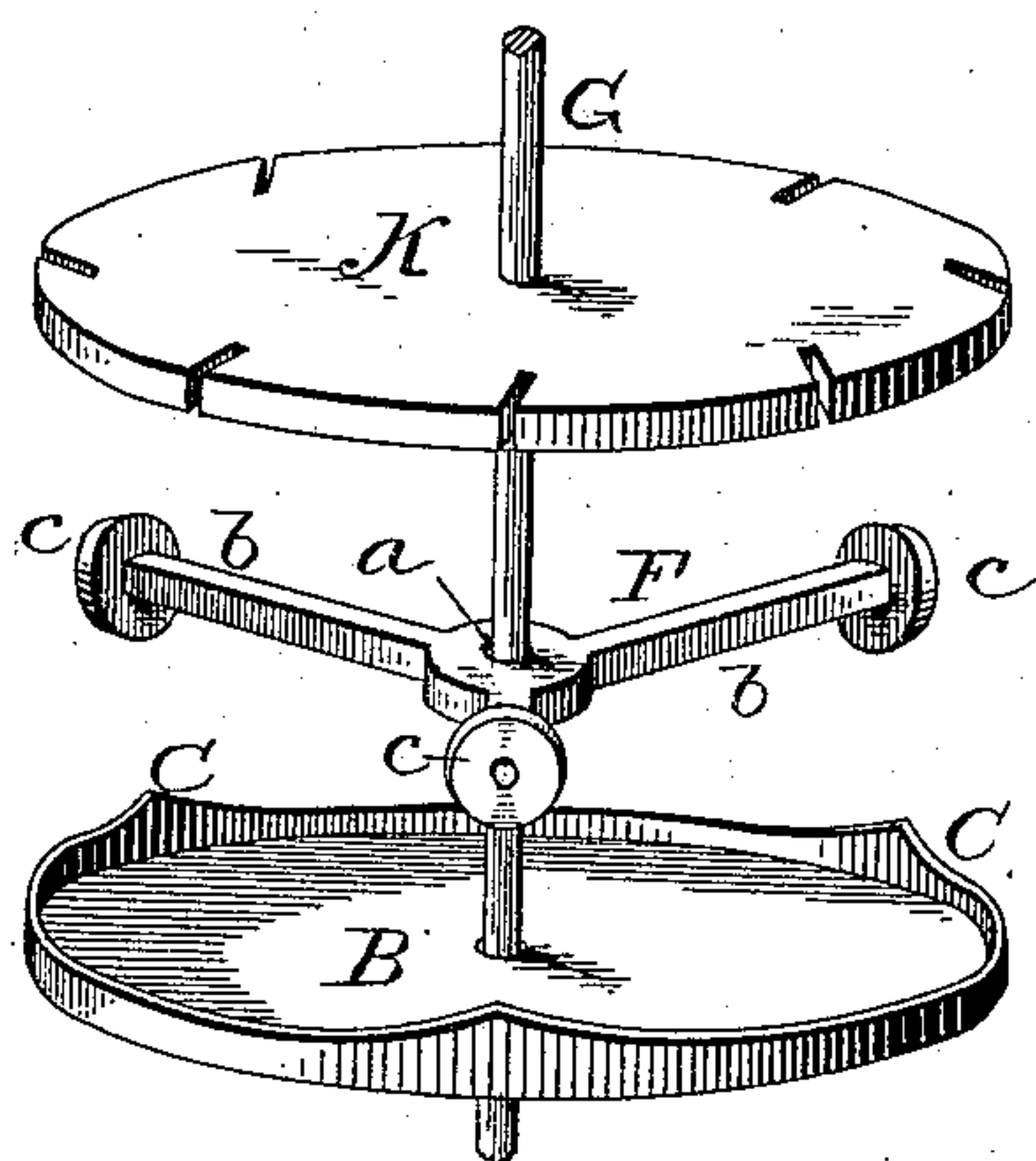
No. 322,862.

Patented July 21, 1885.

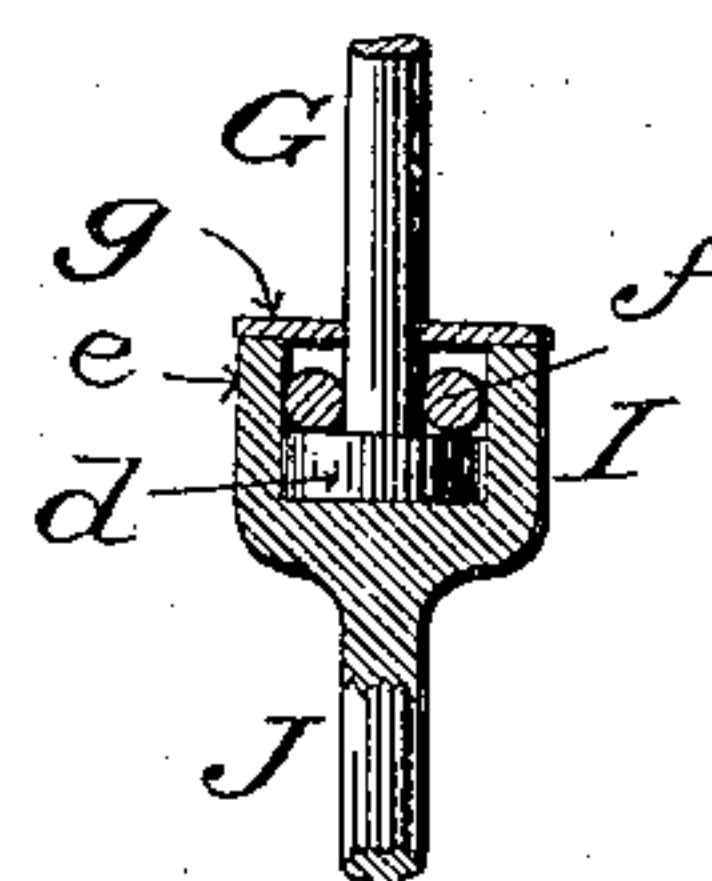
*Fig. 1.*



*Fig. 2.*



*Fig. 3.*



Witnesses:

*Jas. F. Duhamel*  
*Walter S. Dodge*

Inventor:

*FERDINAND W. STARR,*

*By Dodge & Son*

ATTYS.



# UNITED STATES PATENT OFFICE.

FERDINAND W. STARR, OF SPRINGFIELD, OHIO, ASSIGNOR OF ONE-HALF  
TO THOMAS WALL, OF SAME PLACE.

## WINDMILL.

SPECIFICATION forming part of Letters Patent No. 322,862, dated July 21, 1885.

Application filed August 11, 1884. (No model.)

*To all whom it may concern:*

Be it known that I, FERDINAND W. STARR, of Springfield, in the county of Clark and State of Ohio, have invented certain new and  
5 useful Improvements in Windmills, of which the following is a specification.

My invention relates to windmills for pumping water and for like purposes; and it consists, essentially, in a horizontally-rotating  
10 wind-wheel, of any ordinary construction, provided with a vertical central shaft, and sustained by a turn-table having its surface formed with alternate elevations and depressions, so that as the wheel rotates the central  
15 shaft is reciprocated vertically.

It further consists in a self-oiling swivel, especially designed for this mill.

In the drawings, Figure 1 is a perspective view of a wind-wheel constructed and mounted in accordance with my invention, the  
20 blades being partially broken away to show the turn-table; Fig. 2, a perspective view showing the parts of the turn-table separated, and Fig. 3 a sectional view of the shaft-coupling.  
25

The details of the wheel are wholly immaterial, provided only it be of that class commonly known as "horizontal wind-wheels," in which the wheel rotates in a horizontal  
30 plane about a vertical axis; and the construction of the turn-table is likewise subject to considerable modification without departing from the spirit of my invention.

Referring again to the drawings, A indicates a frame or tripod, supporting at its top a horizontal bed or platform, B, upon which is formed or secured an annular track, C, having its upper face made of wave form, or with a series of alternate elevations and depressions, as plainly illustrated in Figs. 1 and 2.  
40

D illustrates the wheel, which is here conventionalized as to design, the particular form shown being used merely by way of illustration of the general idea. The blades E are  
45 set tangentially, so as to take the wind in one direction and shed it from the opposite face. If desired, the inactive half of the wheel may be protected from the wind by a self-adjusting guard or shield, as in various wheels long  
50 since known to the public.

About midway of its height or of the length of the blade E the wheel is provided with a circular disk or head, K, which forms one of the hubs or supports for the blades, and at the top is a similar but smaller disk, both being firmly keyed or otherwise secured to a  
55 central vertical shaft, G, which passes downward and centrally through the platform B of frame A, as also through a lower platform or cross-brace, H, thereof, as shown in Fig. 1. 60 The blades E are by this construction and arrangement caused to hang below the platform B, and thus to lessen the tendency that would otherwise exist to rock or tip the frame.

Between the platform B and the head or  
65 disk K is interposed a spider-frame, F, having a central eye or hole, *a*, to permit it to encircle the shaft G, and having its radial arms *b* provided with rollers *c*, which travel upon the track C of platform B, and upon which  
70 the head or disk K rests and is supported. The spider-frame F is free to turn about the shaft independently of the wheel D or platform B.

The shaft G is connected by a swivel, I, to  
75 the rod J of a pump or other mechanism requiring a vertical reciprocating motion.

The swivel is made as illustrated in Fig. 3, a head or enlargement, *d*, on the shaft G fitting down into an oil cup or socket, *e*, on the  
80 rod J, which contains a quantity of oil sufficient to last a long time, keys or pins *f* serving to hold the head within the socket, though permitting it to turn freely therein.

The oil is prevented from escaping by means  
85 of a cap, *g*, placed upon the top of the socket *e*, as shown in Fig. 3.

Thus constructed the mechanism operates as follows: The blades E being acted upon by the wind cause the wheel to rotate in the direction indicated by arrow in Fig. 1, the disk  
90 or head K resting upon the rollers *c*, and by reason of its weight and motion causing them to turn and roll upon the track C, following its elevations and depressions, and thereby  
95 elevating and lowering the wheel and its shaft G, together with the rod J, connected therewith.

The rollers prevent any considerable friction, and as the inclines of the track are grad-  
100



ual the power required to operate the wheel and to cause the rollers to ascend them is slight, besides which the momentum gained by the descent of the downward incline materially adds to the ease and certainty of the succeeding ascent.

The proportions of the parts and number of elevations and depressions will of course be varied as required.

10 Instead of employing the track having elevations and depressions, the platform B and head or disk K may both be provided with horizontal annular tracks having teeth, and the rollers *c* be replaced by toothed elliptical  
15 rollers. The track may be placed on the under side of the disk or head K, if desired. I however prefer the construction and arrangement shown and described.

20 Having thus described my invention, what I claim is—

1. In combination with frame A, bed B, and track C, wind-wheel D, having disk K and shaft G, the latter having a head or enlargement, *d*, and rod J, provided with a cup  
25 or socket, *e*, to receive the head *d* of rod G,

and provided with retaining-pins *f* and cap *g*, as shown.

2. A windmill consisting of a supporting-frame having a platform at its upper end, a track having its surface provided with alternate elevations and depressions, a horizontally-rotating wind-wheel provided with a horizontal head or disk, and rollers interposed between said track and disk and serving to impart a vertical motion to the wheel  
35 as the latter rotates, substantially as described and shown.

3. The herein-described windmill, consisting of frame A, having platform B, provided with track C, provided with alternate elevations and depressions, wheel D, provided with blades E, disk K, and shaft G, and frame H, interposed between the platform B and disk K, encircling shaft G, and provided with rollers *c*, substantially as shown and described.

FERDINAND W. STARR.

Witnesses:

JAY W. MORRISON,  
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