(No Model.) 2 Sheets—Sheet 1.

W. E. SHIELDS.

WINDMILL.

No. 441,035. Patented Nov. 18, 1890.

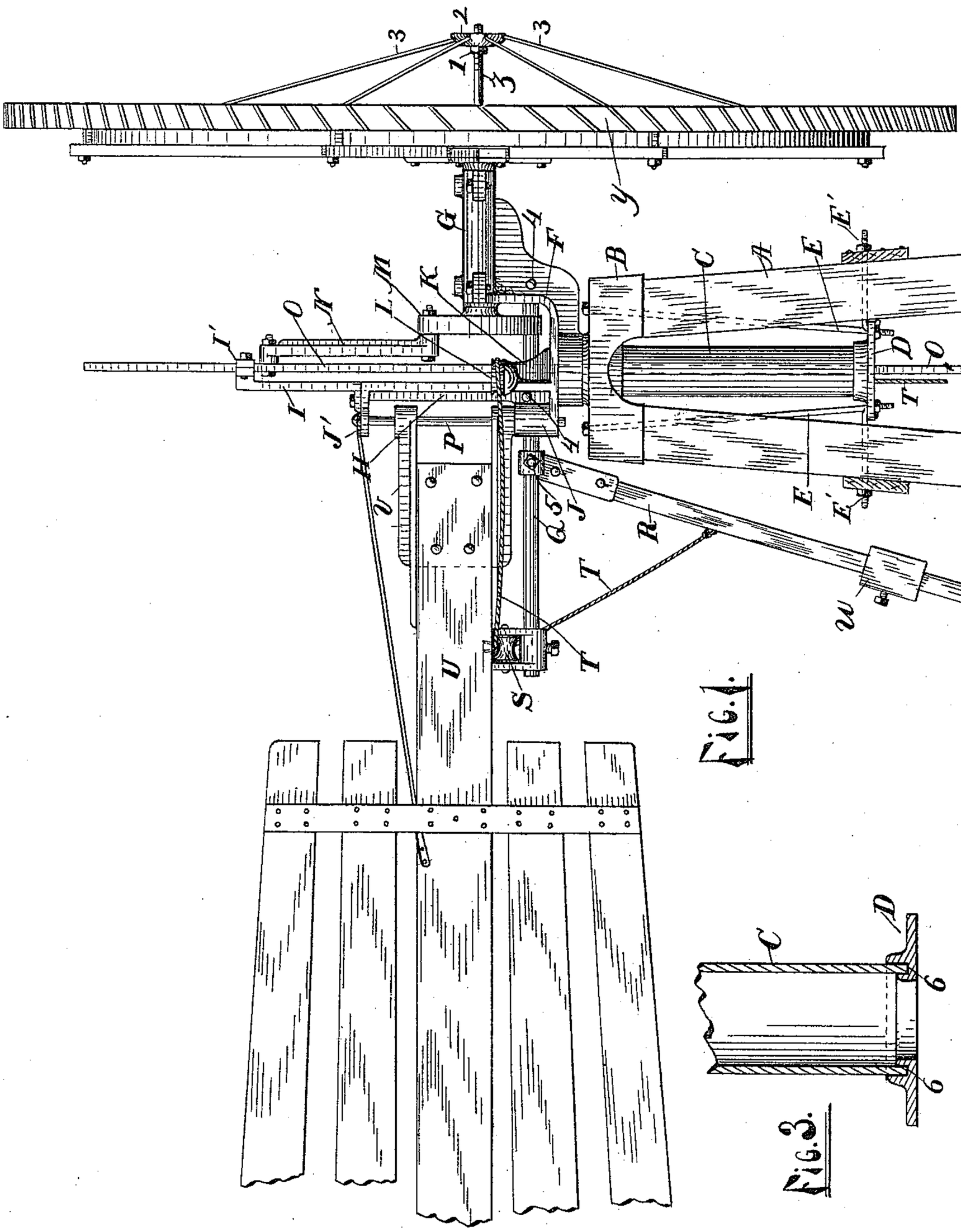

FIG. 1.

FIG. 3.

WITNESSES:

Claude R. Buchanan

Julia C. Pierce

INVENTOR

William E. Shields

BY

Moulton & Rogers

his ATTORNEYS

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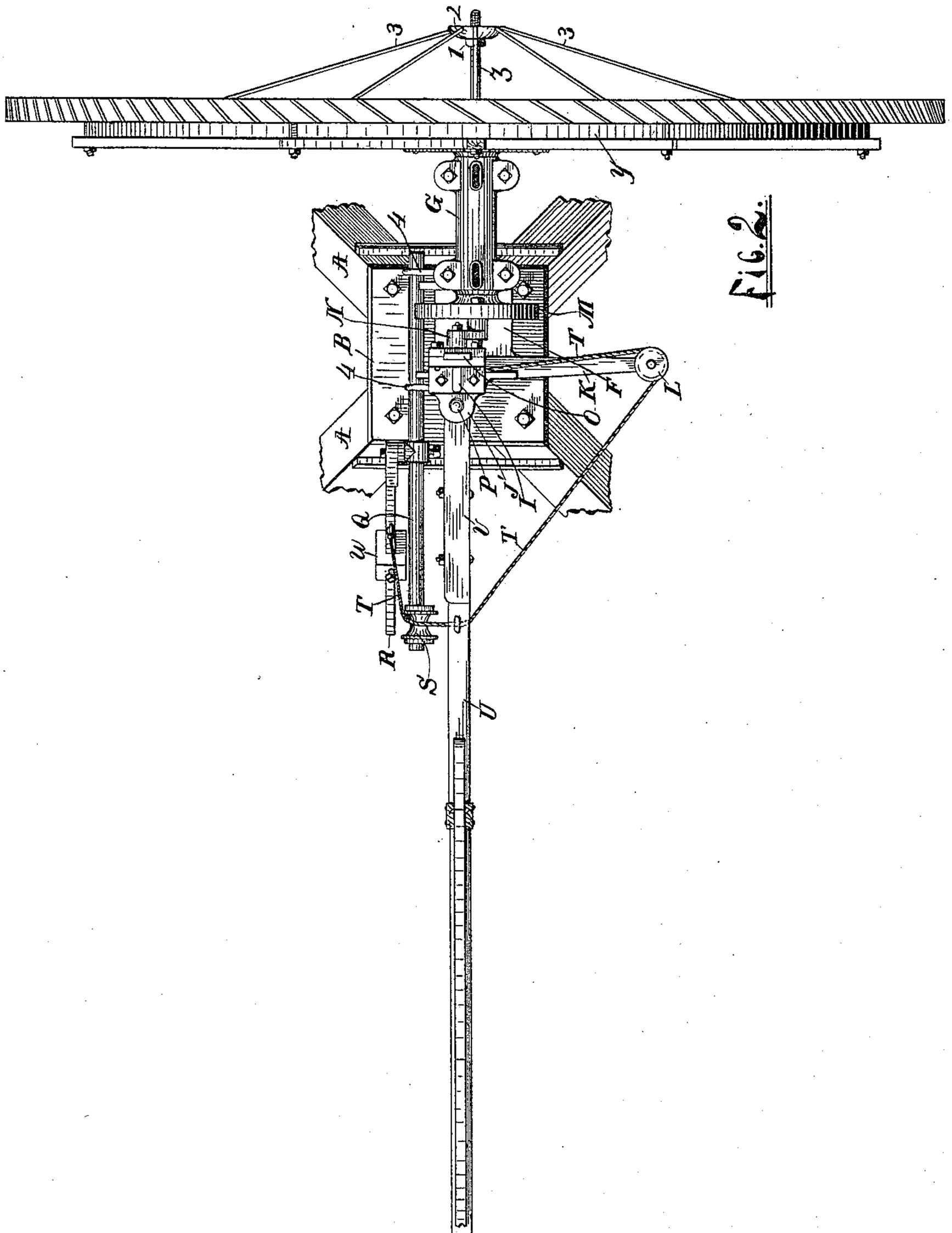

FIG. 2.

WITNESSES:

Claude R. Buchanan

Lulu E. Pierce

INVENTOR

William E. Shields

BY

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his ATTORNEY.S

UNITED STATES PATENT OFFICE.

WILLIAM E. SHIELDS, OF NASHVILLE, MICHIGAN, ASSIGNOR OF ONE-HALF TO LEN W. FEIGHNER, OF SAME PLACE.

WINDMILL.

SPECIFICATION forming part of Letters Patent No. 441,035, dated November 18, 1890.

Application filed January 20, 1890. Serial No. 337,547. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM E. SHIELDS, a citizen of the United States, residing at Nashville, in the county of Barry and State of Michigan, have invented certain new and useful Improvements in Windmills; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to a windmill; and the object of my invention is to produce an article of this description which by reason of its simplicity and cheapness will recommend itself to persons requiring to use such articles, and more especially relates to automatically-governed mills and means for vertically adjusting the turn-tables of such mills; and it consists in the construction, combination, and arrangement of the various parts and details hereinafter more fully described, and pointed out in the claim, reference being had to the accompanying drawings, wherein—

Figure 1 is a side elevation and Fig. 2 a plan of a device embodying my invention; Fig. 3, a detail of step-box and shaft in section.

Like letters and numerals refer to like parts in each of the figures.

A represents the posts of the derrick, upon which rests a cap B, from which is suspended by rods E an annular step-box D, provided with an external flange or collar and an internal flange, between which is the annular groove 6, which forms a bearing, in which the lower end of the hollow shaft C turns. This step-box D is also provided with adjustable stay-rods E′, arranged in posts A, whereby said box may be adjusted both vertically and horizontally for adjusting the vertical inclination of the wheel-casting.

C is a tubular vertical shaft journaled in D at its lower end and having the wheel-casting F permanently secured at its upper end, and has the journal-box G secured to its forward end, in which is journaled the wheel-shaft. A vertical post H, which is integral with F, is provided with a supplementary post I, which is provided with a cap I′, bolted thereto, forming an opening, in which as a guide the pump-rod O plays up and down. At the rear of the post H are placed lugs J J′, in which is placed the pintle P, on which the vane U turns by suitable bearings V, secured thereto and through which the pintle passes. Permanently secured to the wheel-casting F is a rigid arm K, having a wheel or pulley L journaled in its outer end, around which passes the cord T. The wheel-shaft is provided with a crank-wheel M, which connects with the pump-rod O by the pitman N. The pump-rod O and cord T pass downward through the axis of the hollow shaft C. Opposite and at right angles to the arm K is placed a bar Q, permanently secured to the wheel-casting F by hook-bolts 4, and has the roll S at its outer end, over which passes the cord T, and is provided with an adjustable sleeve 5, to which is pivoted a pendent arm R, provided with an adjustable weight W. The end of the cord T is attached to the arm R, and passing upward over the roll S is secured to vane U at a fixed point, and from the opposite side of the vane the cord, after passing around L, is carried inward, thence downward, as described, to the ground, and is provided with any convenient means of fastening.

The wind-wheel Y has at the end the forwardly-projecting threaded stud Z, having a nut 1 for the adjustment of the cup-shaped flange 2, from which are extended and secured to the wheel stay-rods 3 for adjusting and regulating the rigidity of the wheel.

The axis of the wheel being placed, as shown in Fig. 2, at one side of the pivotal point of the vane, it is evident that pressure of the wind against it will tend to throw it out of the wind, and the tendency of the weight W and its attachments is to throw it back again, and the cord T is for throwing the mill into and out of operation in the usual manner of operating such automatically-governed mills.

If the mill should get out of plumb by the settling of either of the posts A, its inclination may be vertically adjusted by moving the step-box D horizontally, which is provided for by suspending it from the cap B by rods E, and securing it laterally by stay-rods E′, provided with nuts and arranged in the posts A. The step-box is not in contact with either post, and may be adjusted (more or less) toward or away from either, as desired. I am aware that supporting a turn-table upon a hollow shaft having an extension journaled in a step-box sus-

pended from a cap is not new, and I do not therefore claim the same broadly.

What I claim, and desire to secure by Letters Patent of the United States, is—

In a windmill, the combination, with the supporting-posts and their cap, of a vertical shaft located betwen said posts and passing through said cap, a step-bearing for said shaft, said bearing having a flange and a groove for the reception of the end of the shaft, rods for suspending said step-bearing from the cap, said rods passing through said flange and having their lower ends screw-threaded and provided with nuts located in contact with the under side of the flange, and lateral adjusting and securing rods fastened at their inner ends to said flange and having threaded outer ends provided with nuts.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM E. SHIELDS.

Witnesses:

LUTHER V. MOULTON,

LEN W. FEIGHNER.