

No. 728,481.

PATENTED MAY 19, 1903.

G. S. LOWELL.

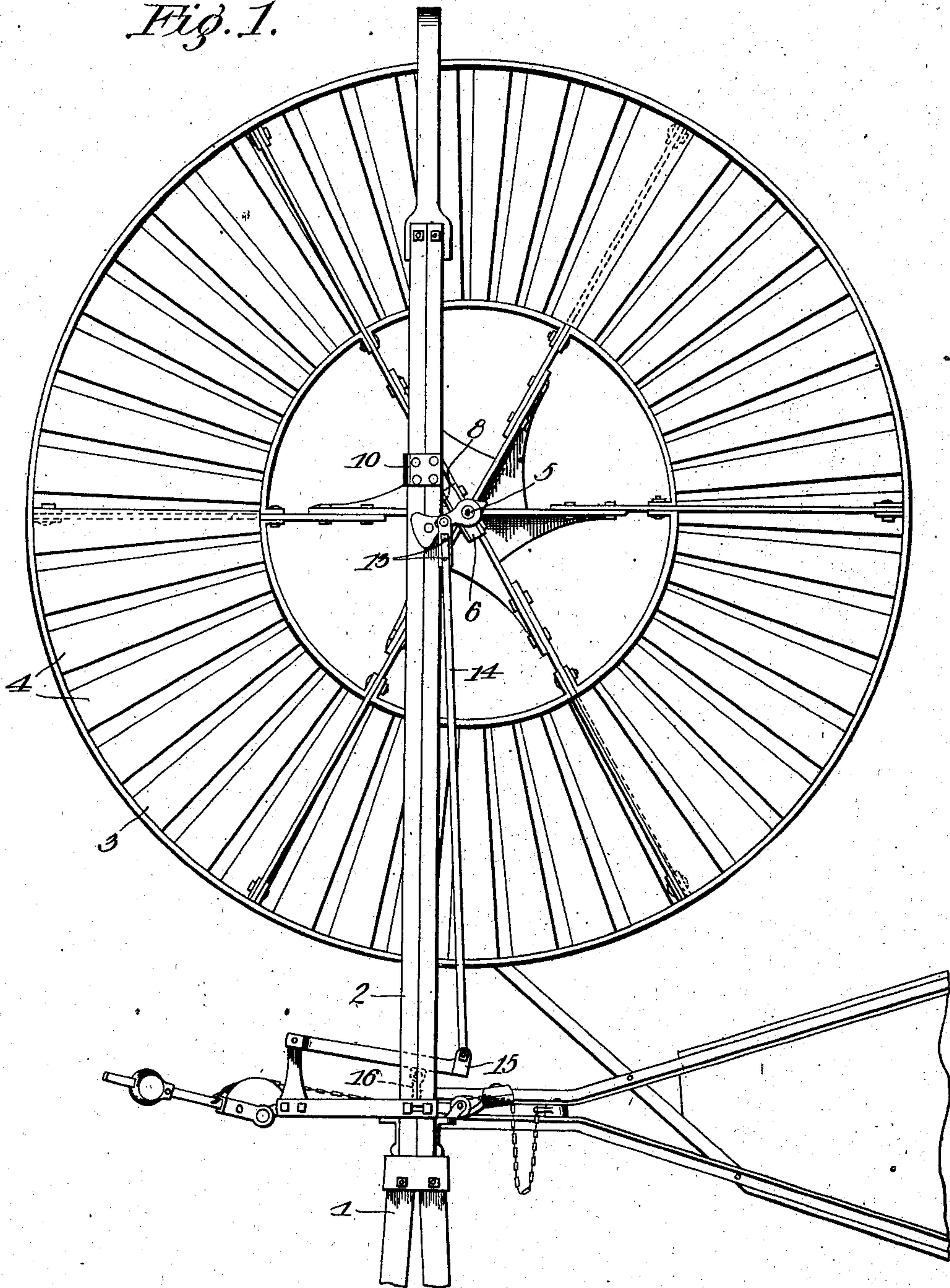
WINDMILL.

APPLICATION FILED MAR. 11, 1903.

NO MODEL.

2 SHEETS—SHEET 1.

Fig. 1.



Witnesses
E. F. Stewart
J. D. Elmore

G. S. Lowell, Inventor.
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Attorneys

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2 SHEETS—SHEET 2.

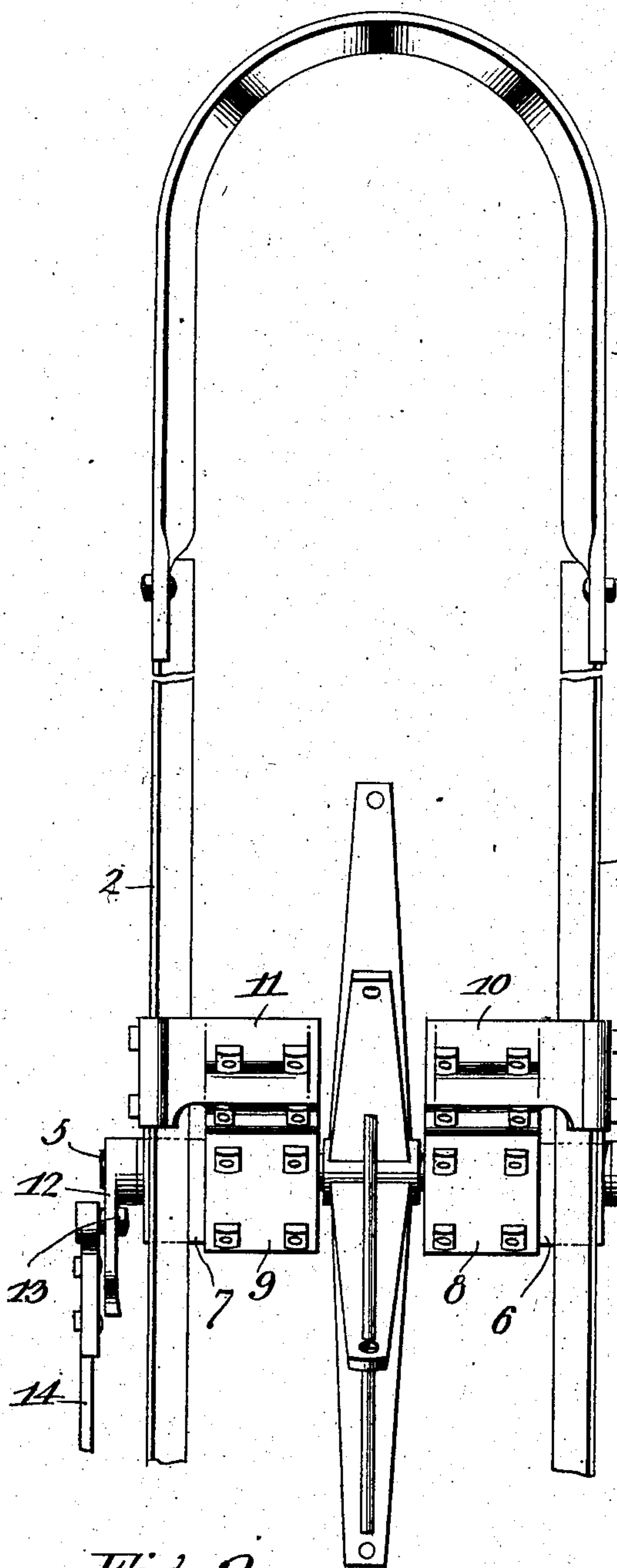


Fig. 2.

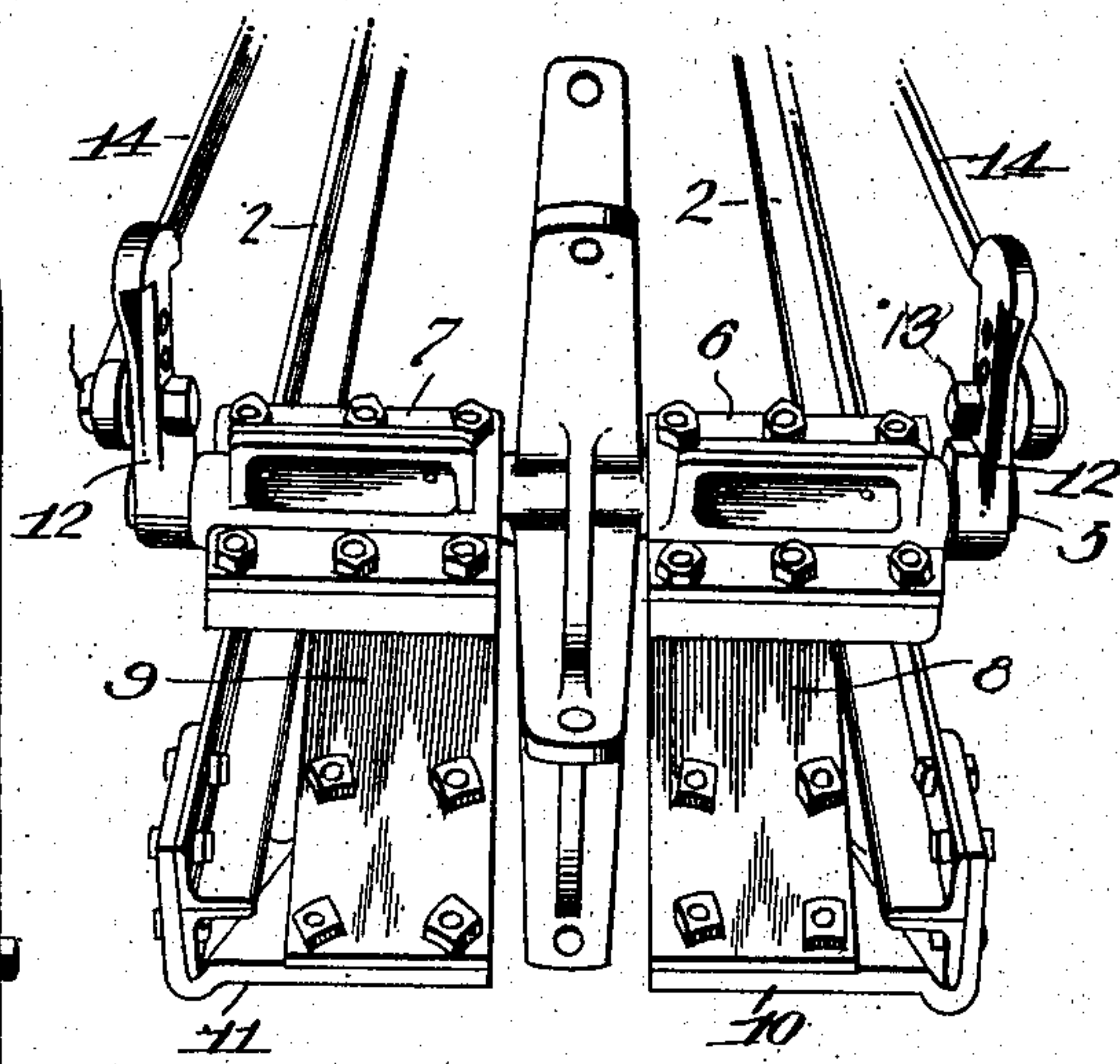


Fig. 3.

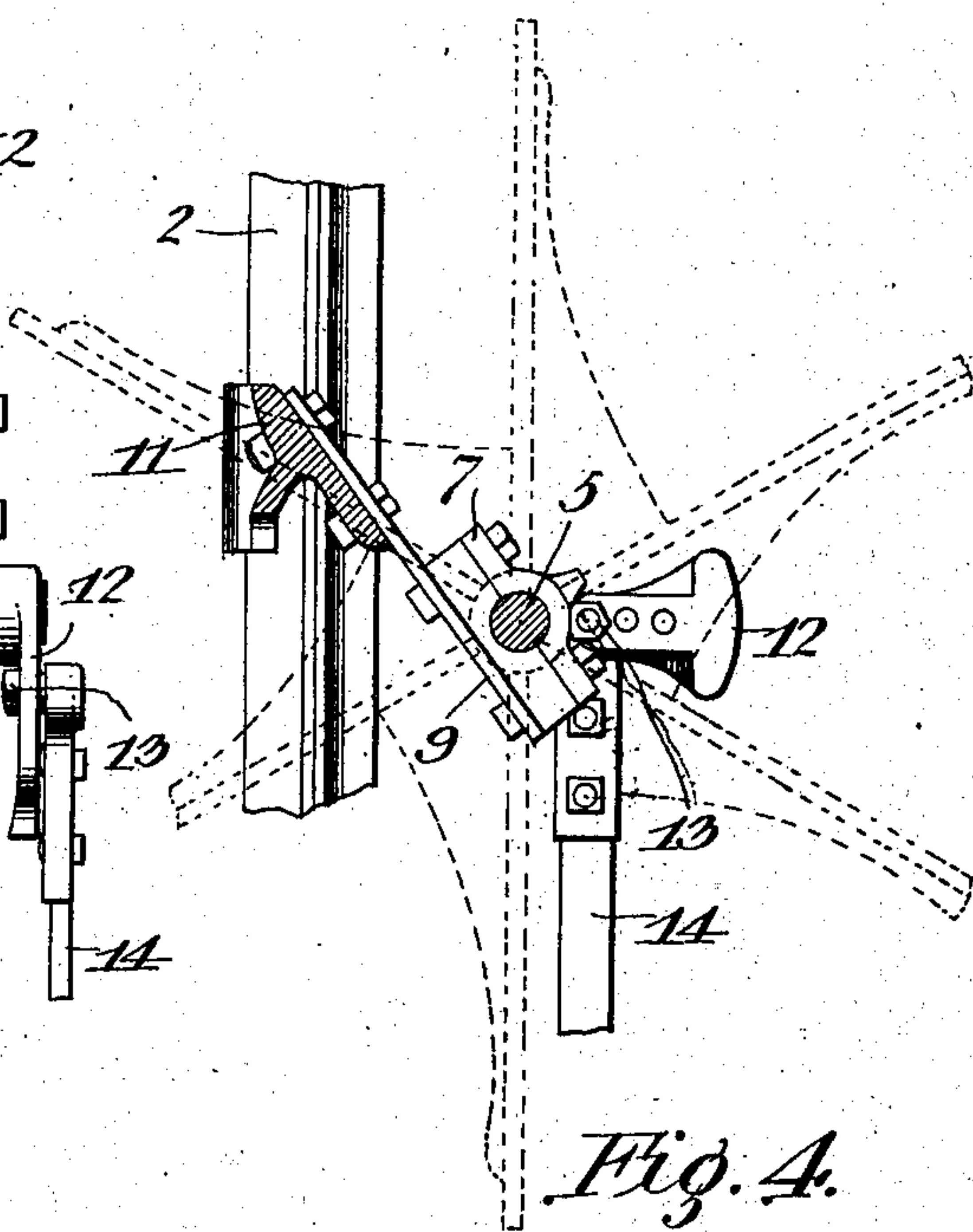


Fig. 4.

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UNITED STATES PATENT OFFICE.

GRANT S. LOWELL, OF SALINA, KANSAS.

WINDMILL.

SPECIFICATION forming part of Letters Patent No. 728,481, dated May 19, 1903.

Application filed March 11, 1903. Serial No. 147,338. (No model.)

To all whom it may concern:

Be it known that I, GRANT S. LOWELL, a citizen of the United States, residing at Salina, in the county of Saline and State of Kansas, have invented a new and useful Windmill, of which the following is a specification.

Windmills as now constructed are necessarily provided with a system of back gearing connecting the pump-operating crank with the axle of the wind-wheel in order to compensate for wind variations and the attendant jerky action to which the pump would be subjected.

My invention has for its objects to provide a simple and efficient means for so cushioning the wind-wheel axle that it will yield under wind variations, thus preventing jarring and jerking of the pump-rod, dispensing with the back gearing, and permitting a direct connection of the pump-rod-operating crank with the axle of the wheel, thus not only simplifying and rendering less expensive the construction of the device as a whole, but materially increasing its efficiency in operation in that when the back gearing is employed the pump-rod makes one stroke to every four revolutions of the wheel, whereas when the connection between the rod and axle is direct one stroke of the rod is obtained by every revolution of the wheel.

To these ends the invention comprises the novel details of construction and combination of parts more fully hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a side elevation of a windmill constructed in accordance with my invention. Fig. 2 is a rear view of the same. Fig. 3 is a detailed perspective view of the upper part of the vertical standards, wheel-supporting axle, and attendant parts, the wheel being omitted. Fig. 4 is a detailed sectional elevation on an enlarged scale.

Referring to the drawings, 1 indicates the wind-wheel tower, which may be of the usual or any desired construction and which has mounted in any suitable manner upon its upper end and arising vertically therefrom a pair of spaced parallel standards 2, which sustain the axle-supporting mechanism of the wind-wheel 3 and at their upper ends are

connected with the lower ends of a U-shaped frame which arches over the top of the wheel. While this U-shaped frame is preferably employed, it is to be understood, of course, that the same may be dispensed with and the side standards terminate, as usual, just above the center of the wheel.

The framework of the wheel 3, which carries the usual blades or sails 4 to be acted upon by the wind for driving the wheel, is sustained by and operates a central axle 5, journaled for rotation in bearings 6 and 7, which receive the axle at opposite sides of the wheel and are bolted or otherwise secured to the outer free ends of flat steel springs 8 and 9, which in turn are bolted at their upper ends, respectively, to sustaining members 10 11, suitably connected to and sustained by the standards 2. It is to be observed in this connection that the bearings of axle 5 are sustained wholly by the springs 8 and 9. Thus the weight of the wheel is sustained wholly by said springs, which are susceptible of yielding under shocks sustained by the wheel owing to wind variations, for the purpose more fully explained hereinafter.

Fixed to the outer end of the axle 5 in any suitable manner are crank-arms 12, to which are attached by suitable connecting-bolts 13 the upper ends of vertical links 14, which are pivotally connected at their lower ends with the cross-head 15 of the pump-rod 16. From this construction it will be seen that the pump-rod is driven directly from the crank-arms mounted on the axle of the wheel and that the rod will make one full stroke at every revolution of the wheel, thus not only insuring a more perfect operation of the pump, owing to its direct connection with the wheel-axle, but also an increased speed of the same.

From the foregoing it will be seen that I produce a simple and efficient means for sustaining the wind-wheel with a cushioning action in order to permit direct connection of its axle with the pump-operating crank, thus obviating back gearing and at the same time jarring and jerking of the pump-rod, as above described, and in attaining these ends I do not limit or confine myself to the details herein shown and described, inasmuch as va-

rious changes may be made therein without departing from the spirit or scope of my invention.

Having thus described my invention, what I claim is—

1. In a windmill, the combination with a wind-wheel, of an axle therefor, bearings for said axle, a cushioning member for yieldably sustaining said bearings, and a pump-rod operatively connected with said axle.

2. In a windmill, the combination with a wind-wheel, of an axle therefor, bearings for said axle, springs for yieldably sustaining said bearings, and a pump-rod operatively connected with said axle.

3. In a windmill, the combination with a supporting-frame, of a member associated therewith, a leaf-spring carried by said member, a bearing carried by the free end of said spring, an axle journaled in said bearing, and a wind-wheel mounted on said axle.

4. In a windmill, the combination with a supporting-frame, of a pair of members associated therewith, a leaf-spring carried by each of said members, a bearing attached to the free end of each of said springs, an axle journaled in said bearings, and a wind-wheel mounted on said axle between said bearings.

5. In a windmill, the combination with a wind-wheel, of an axle therefor, a bearing for said axle, a spring for yieldably sustaining said bearing, a crank-arm mounted on said axle, and a pump-rod operatively connected with said crank-arm.

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

GRANT S. LOWELL.

Witnesses:

WM. REIMOLD,
B. PEARL.