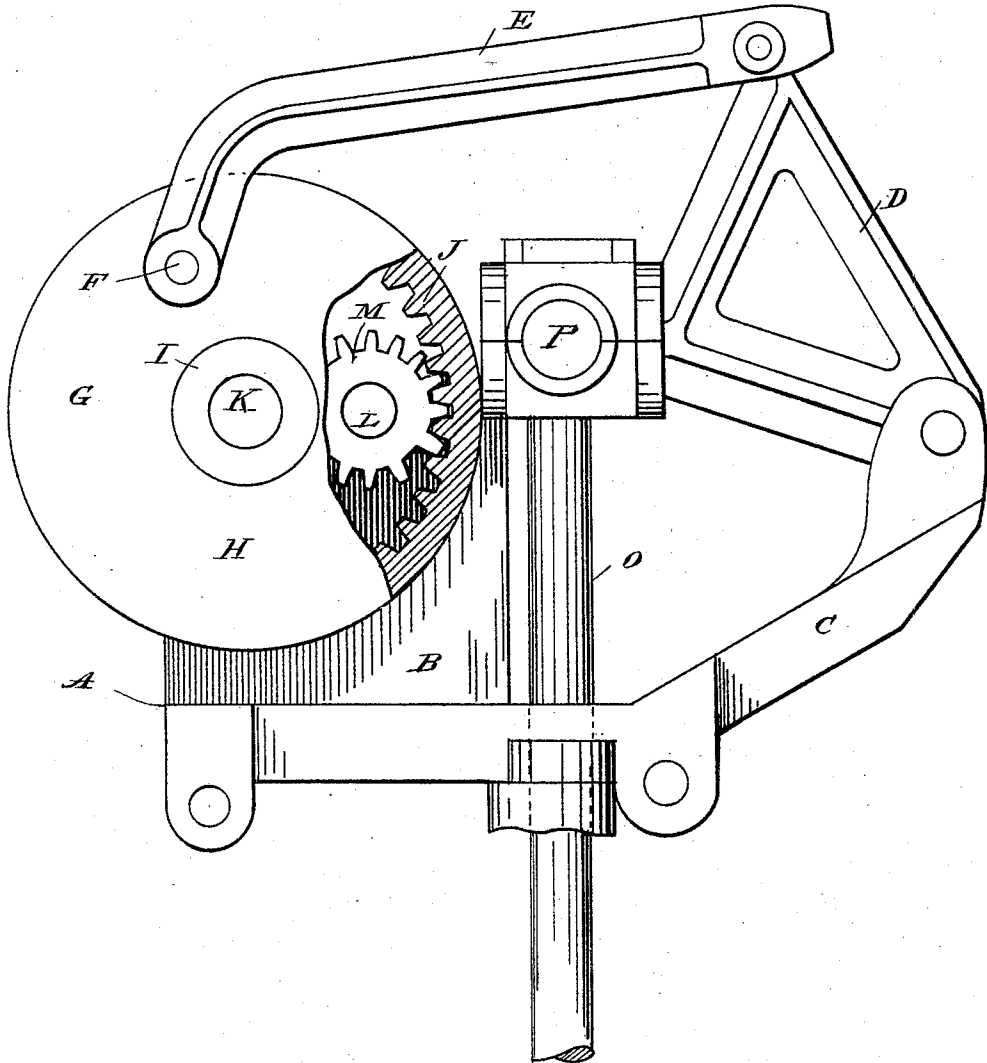


(No Model.)

S. W. MARTIN.  
WINDMILL.

No. 433,531.

Patented Aug. 5, 1890.



WITNESSES

*H. M. Plaisted,*  
*Warren Hill,*

INVENTOR

*Samuel W. Martin,*  
*B. H. A. Pauline,*  
*his Attorney.*

# UNITED STATES PATENT OFFICE.

SAMUEL W. MARTIN, OF SPRINGFIELD, OHIO, ASSIGNOR TO THE MAST,  
FOOS & COMPANY, OF SAME PLACE.

## WINDMILL.

SPECIFICATION forming part of Letters Patent No. 433,531, dated August 5, 1890

Application filed May 2, 1890. Serial No. 350,281. (No model.)

*To all whom it may concern:*

Be it known that I, SAMUEL W. MARTIN, a citizen of the United States, residing at Springfield, in the county of Clark and State of Ohio, have invented certain new and useful Improvements in Windmills, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to improvements in windmills.

The invention consists, essentially, of an improved back-gear organization involving an external-toothed pinion and an internal-toothed spur-gear, the pinion being mounted on the wheel-shaft and the gear having formed on or connected with it the wrist-pin, to which the operating-pitman is attached, whereby the speed of the main shaft as applied to the wrist-pin and pitman is reduced, and whereby, also, all pounding and lost motion is prevented as the pitman-connection passes over the center and changes from a pushing to a pulling action. This object is accomplished by the fact that a plurality of the pinion-teeth are always engaged with the internal spur-gear, resulting in giving a perfectly uniform and smooth and noiseless reciprocating motion to the actuating-rod, thereby prolonging the life of the machine by saving it from constant jarring and preventing wear and tear.

In the accompanying drawing, forming a part of this specification, and on which like reference-letters indicate corresponding parts, the figure represents a side elevation of my improved organization, with some of the parts in section, showing the same applied to any approved type of windmill structure.

The letter A designates a cast frame or structure carried by the upper part of the turn-table of a windmill, of which B refers to one of the bearing-blocks and C to an arm, to which is pivoted the pitman D. This pitman is triangular and of the type on the market in windmills manufactured by my assignees of this invention. To one extremity of this pitman is attached a pitman-bar E, the other end of which bar is fitted upon a wrist-pin F, carried by the internal gear G. This gear may be of any approved type, so long as it is provided with internal teeth.

In the present case it is constructed with a disk H, having a hub I and a rim J. It is mounted upon a stud or shaft K, carried by the bearing-block B.

On the main shaft L is placed an external toothed pinion M. It will be observed from the drawing that the pinion is within the circumference of the rim J and is intermeshed with the teeth of said rim. It will also be noticed that a plurality—three in the present instance—of the teeth of the pinion are engaged with the teeth of the gear-rim. This is due to the fact that the rim encircles the pinion. Thus it will be seen that when the main shaft is rotated with its pinion the internal gear-wheel G will also be rotated, though at a reduced speed, and as several of the teeth of the pinion are always engaged with the teeth of the rim no lost motion will occur as the wrist-pin passes the center, and the strains are changed from a pull to a push upon the pitman-bar E. The actuating-rod O connects with the pitman D in any approved manner at P, and extends down from the tower to the appliances to be operated—say a pump. The freedom of the organization from lost motion and sudden jerks as the wrist-pin passes over the center renders the operation of the pump smooth and regular. This increases the effectiveness of the pump and prevents undue wear and tear.

The invention is in practical operation and on the market in considerable numbers, and the facts here stated with regard to its operation are such as have been ascertained from commercial experience with it.

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

1. The combination, with a windmill-driving shaft and a pinion thereon, of an internal-toothed spur-wheel mounted adjacent to the said shaft and meshing with said pinion, a pitman connected with the spur-wheel, and an actuating-rod connected with the pitman.
2. The combination, with a windmill-driving shaft and a pinion mounted thereon, of an internal-toothed spur-wheel mounted adjacent to said shaft and meshing with said pinion, a pitman-bar connected to the spur-wheel, a pivoted pitman connected to the said

bar, and an actuating-rod connected to said pitman.

3. The combination, with the upper part of a windmill turn-table, the main shaft mounted thereon, and a pitman pivoted thereto, an  
5 actuating-rod carried by the pitman, and a pinion mounted on said shaft, of a shaft or stud adjacent to the main shaft, an internal spur-gear mounted on said shaft or stud and

having a wrist-pin, and a pitman-bar connected to the wrist-pin and to said pitman.

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

SAMUEL W. MARTIN.

Witnesses:

WARREN HULL,  
H. W. PLAISTED.