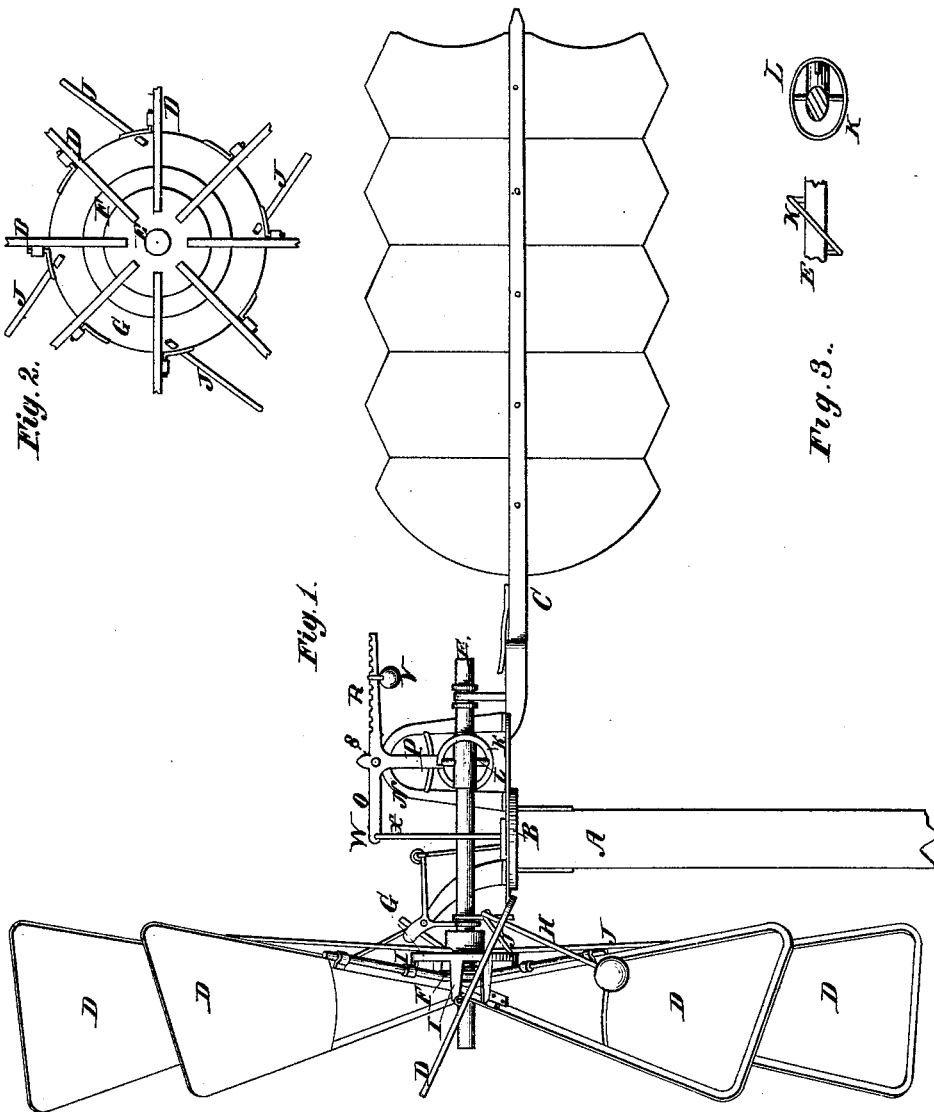


**D. BULL.**  
**MECHANISM FOR OBTAINING RECIPROCATING MOTION FROM**  
**WIND-WHEELS.**

No. 188,000.

Patented March 6, 1877.



*Witnesses.*

*O. St. Adix*  
*Lucas. Horton*

*Inventor*

*Daniel Bull*  
*By G. S. Chapin*  
*Atty*

# UNITED STATES PATENT OFFICE.

DANIEL BULL, OF AMBOY, ILLINOIS, ASSIGNOR TO HIMSELF AND WILLIAM L. BEALS, OF SAME PLACE.

IMPROVEMENT IN MECHANISMS FOR OBTAINING RECIPROCATING MOTION FROM WIND-WHEELS.

Specification forming part of Letters Patent No. **188,000**, dated March 6, 1877; application filed August 3, 1876.

*To all whom it may concern :*

Be it known that I, DANIEL BULL, of Amboy, in the county of Lee and State of Illinois, have invented a new and useful Improvement in Mechanism for Obtaining Reciprocating Motion from Wind-Wheels, of which the following is a specification :

The nature of the invention consists in an elliptical cam, which is held diagonally round the main shaft of a windmill by suitable spokes, and which, being rotated by the shaft, drives a T-shaped walking-beam, to one end of which is pivoted a pump-rod.

In the drawings, Figure 1 represents a windmill, connected with which is my aforesaid improvement; Fig. 2, a broken face view of the wind-wheel and an end view of the shaft to which the cam is attached; Fig. 3, shows two different views of the cam from that shown in Fig. 1.

K represents an elliptical cam, which is made of iron or other suitable material, and held to the shaft E of a windmill by means of spokes L. To the turn-table B of the windmill is attached an upright frame, N, to which is pivoted a T-shaped walking-beam, O

P R, at S. The lower end of the part P of the walking-beam is notched out, so as to engage the cam K and slide thereon. At one end of the bar O R is placed a weight, v, which may be moved to or from the pivot S, and, as a governor, regulate in a measure the movement which the pump is to have. To the other end of the bar is pivoted the pump-rod X at W.

This construction is such that when the shaft E rotates, carrying the cam K with it, the T-shaped walking-beam O P R will oscillate, and consequently give to the pump-rod X a vertically-reciprocating movement.

I claim as new and desire to secure by Letters Patent of the United States—

In obtaining reciprocating motion from wind-wheels, the combination of the cam K, shaft E, T-shaped walking-beam O P R, frame N, and rod X, as and for the purpose set forth.

DANIEL BULL.

Witnesses :

O. H. ADIX,  
G. L. CHAPIN.