

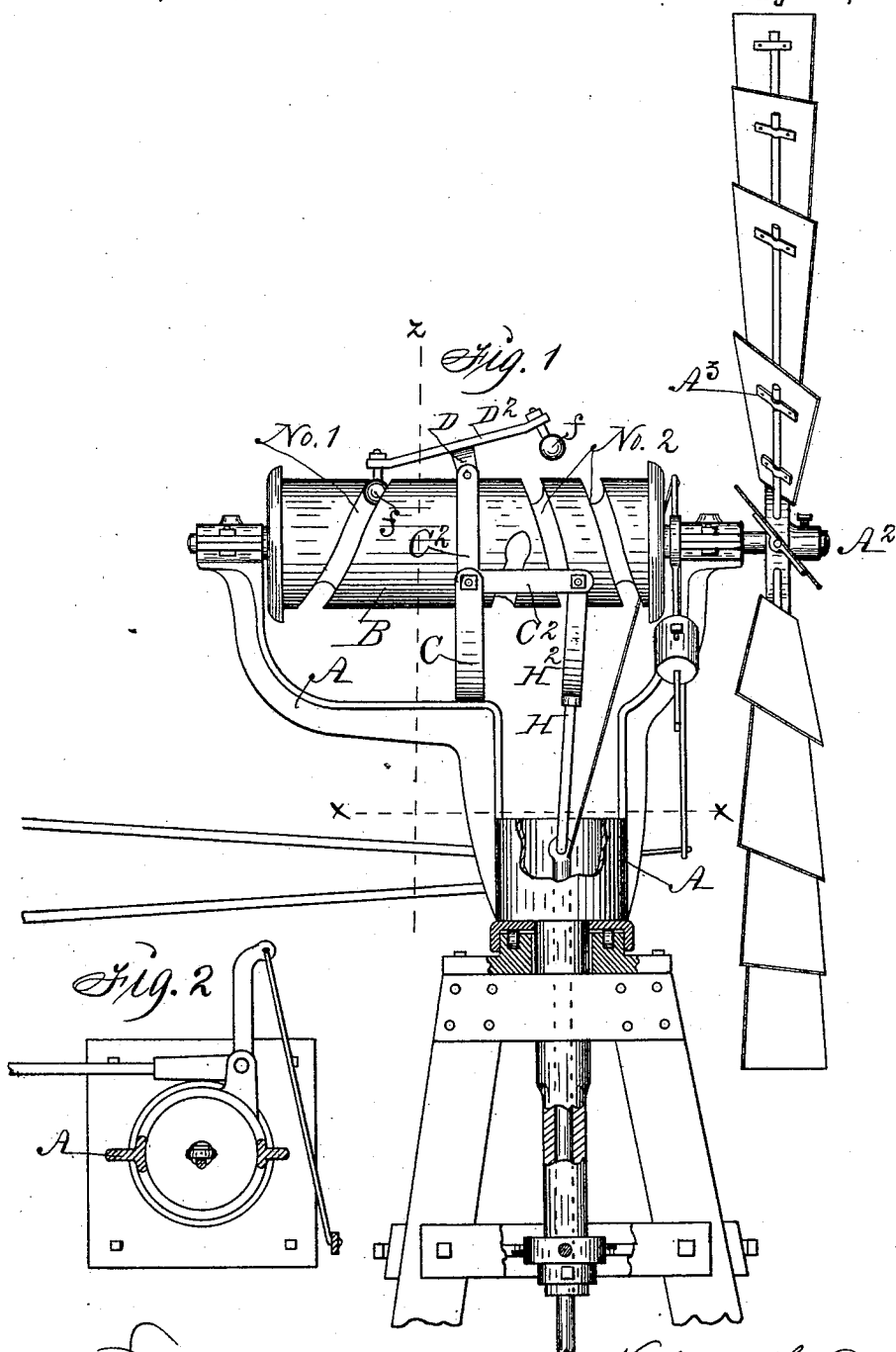
(No Model.)

2 Sheets—Sheet 1.

W. H. BAKER.
MECHANICAL MOVEMENT.

No. 475,379.

Patented May 24, 1892.



Witnesses: *W. J. Sankey.*
R. H. Orwig } Inventor: *William H. Baker,*
By Thomas G. Orwig, Attorney.

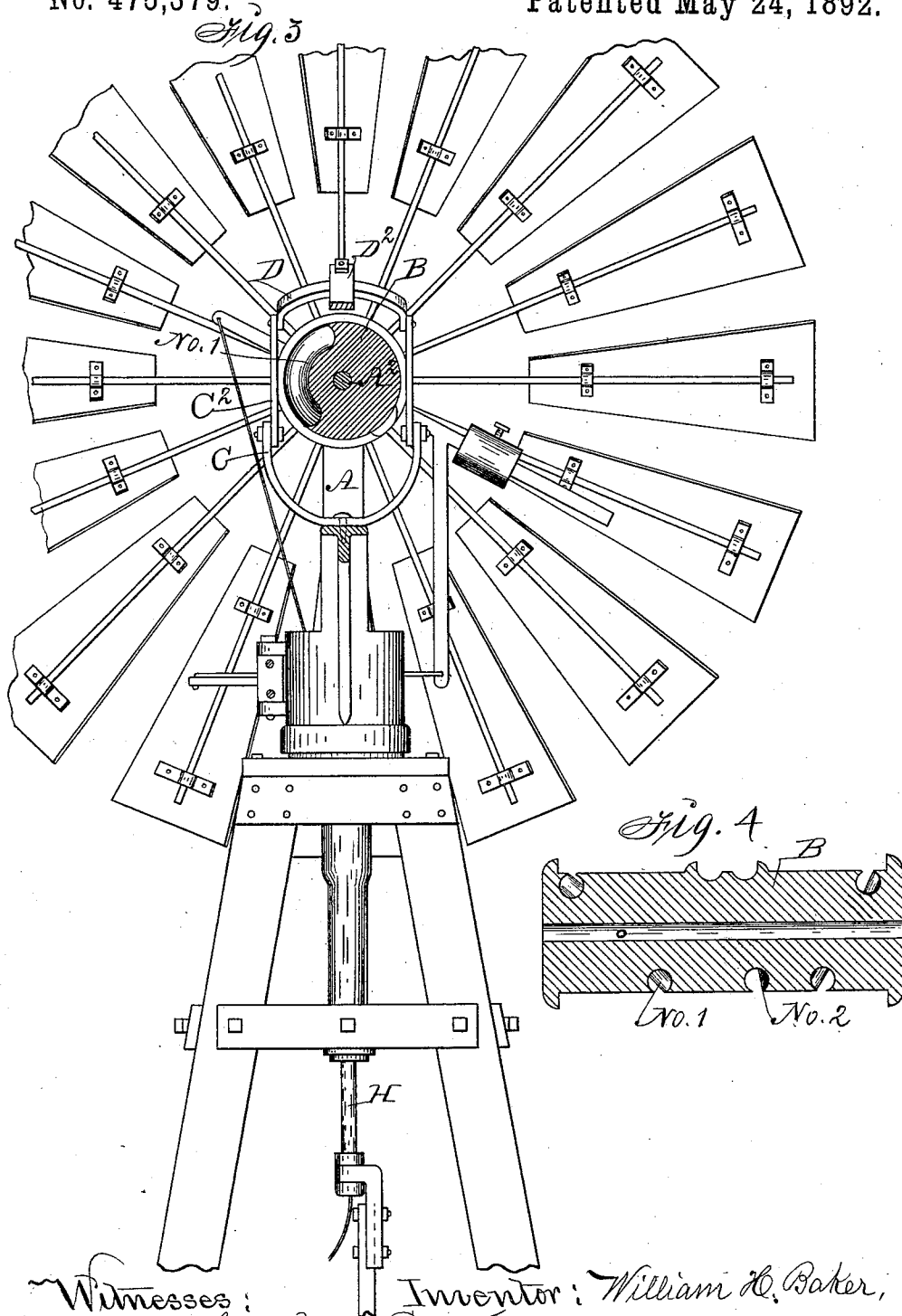
(No Model.)

2 Sheets—Sheet 2.

W. H. BAKER.
MECHANICAL MOVEMENT.

No. 475,379.

Patented May 24, 1892.



Witnesses:
W. J. Sankley,
R. H. Orwig.

Inventor: William H. Baker,
By Thomas G. Orwig, Attorney.

UNITED STATES PATENT OFFICE.

WILLIAM H. BAKER, OF DES MOINES, IOWA, ASSIGNOR TO THE PIONEER
MANUFACTURING COMPANY, OF SAME PLACE.

MECHANICAL MOVEMENT.

SPECIFICATION forming part of Letters Patent No. 475,379, dated May 24, 1892.

Application filed July 30, 1891. Serial No. 401,115. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. BAKER, a citizen of the United States of America, residing at Des Moines, in the county of Polk and State of Iowa, have invented a Mechanical Movement for Wind-Wheels, &c., of which the following is a specification.

The object of my invention is to convert the rotary motion of a wind-wheel into reciprocating rectilinear motion and to make a quicker motion in one direction than the other as required to lift a pump rod and piston in a force-pump in less time than is taken for forcing it downward, or in passing a pump-rod downward in a lift-pump with a quick motion and lifting the plunger or bucket slowly; and I accomplish such results by the novel mechanism hereinafter set forth, pointed out in the claims, and illustrated in the accompanying drawings, in which—

Figure 1 is a side view of my device applied to a wind-wheel as required for practical use. Fig. 2 is a detail view, looking down from the line xx of Fig. 1, showing an arm extending horizontally from the pivoted end of the vane. Fig. 3 is a view looking from the line zz in Fig. 1 toward the face of the wind-wheel. Fig. 4 is a longitudinal section of the grooved cylinder fixed to the shaft that is rotated by the wind-wheel.

A represents a frame pivotally connected with a suitable support to rotate horizontally.

A^2 is a rotating shaft in bearings formed in or fixed to the top of the frame A, and A^3 is a wind-wheel fixed to the projecting end of the shaft A^2 .

B is a cylinder fixed to the shaft A^2 by means of a bolt or rivet or in any suitable way so that it will be concentric with the shaft and rotate therewith. It is a spiral groove No. 1 in one end portion of its surface, that surrounds the cylinder only one time, and a spiral groove No. 2, that extends in the other portion and surrounds the cylinder two times. Both grooves extend the same distance relative to the length of the cylinder and in opposite directions from the central portion of the cylinder.

C is an auxiliary frame fixed to the frame

A and in a right-angled position thereto, so that the free top ends thereof will be on opposite sides of the cylinder B.

C^2 are elbow-shaped levers pivoted to the top ends of the frame C.

D is a curved bar pivoted to the top ends of the levers C^2 , and D^2 is a straight bar that has its extremities inclined upward, fixed to the center of the curved bar D, and in a right-angled position therewith.

f are studs, preferably spherical, fixed to the ends of the bar D^2 to project downward, and adapted in size and position to enter and traverse the spiral groove in the cylinder B. The bars D and D^2 are carried by the elbow-shaped levers C^2 , and when the upper ends of said levers pass a perpendicular line relative to their centers of motion the stud f at one end of the bar D^2 will escape from the groove it traversed in the cylinder and will be elevated as it comes out of the groove to the surface of the cylinder, and by such elevation of the stud the bar D^2 is vibrated and the stud f at its other end lowered, as required, to enter the groove in the cylinder, coinciding with the position of the said stud as it is lowered.

H is a pump-rod connected with the free ends of the horizontal portions of the elbow-shaped levers C^2 by means of a yoke H^2 .

In the practical operation of my invention the cylinder B is rotated by the action of the wind-wheel, and the studs f on the end of the bar D^2 will alternately enter and traverse the grooves in the cylinder. The stud in the No. 1 groove will pass in and out of the groove while the cylinder makes one revolution, and the stud in the groove No. 2 will remain therein while the cylinder makes two revolutions, and as the studs alternately traverse their respective grooves the bars D and D^2 and the elbow-shaped levers C^2 are vibrated, as required, to accommodate themselves to the movements of the studs in the grooves Nos. 1 and 2, and also as required to convert the rotary motion of the wind-wheel and cylinder B to impart a reciprocating rectilinear motion to the pump-rod H, connected with the elbow-shaped levers C^2 ; and as one of the studs f engage the cyl-

inder B only during the time of one revolution of the cylinder and the other stud during two revolutions it is obvious that the vertical vibrations of the horizontal arms of the levers C² will be quick in one direction and slow in the other direction, as required, to operate the pump, in the manner and for the purpose hereinbefore stated.

I claim as my invention—

- 10 1. A mechanical movement for converting rotary motion into reciprocating rectilinear motion, and that motion quicker in one direction than the other, comprising a rotating cylinder having spiral grooves in its surface differing in length and extending in reverse ways from the central portion of the cylinder toward the ends, a frame adapted to support the cylinder, elbow-shaped levers pivoted to the frame to vibrate vertically on the opposite sides of the cylinder, a cross-bar pivoted to the tops of the elbow-shaped levers, a bar fixed across the center of said cross-bar and at right angles thereto, and studs projecting downward at its ends to alternately traverse

the grooves in the cylinder, in the manner set forth.

2. A rotating shaft having a fixed cylinder B, grooves Nos. 1 and 2 in the surface of the cylinder and extending in reverse ways from the central portion thereof, a frame having bearings to support the cylinder, elbow-shaped levers C², pivotally connected with said frame to vibrate vertically on the opposite sides of the cylinder, a cross-bar D, pivotally connected with the arms of the levers extending vertically, a bar D², fixed across the top and center of the bar D, and studs f, extending downward therefrom to enter and traverse the grooves in the cylinder, and a rod pivotally connected with the ends of the elbow-shaped levers that extend horizontally, all arranged and combined to operate in the manner set forth, for the purposes stated.

WILLIAM H. BAKER.

Witnesses:

R. H. ORWIG,
THOMAS G. ORWIG.