

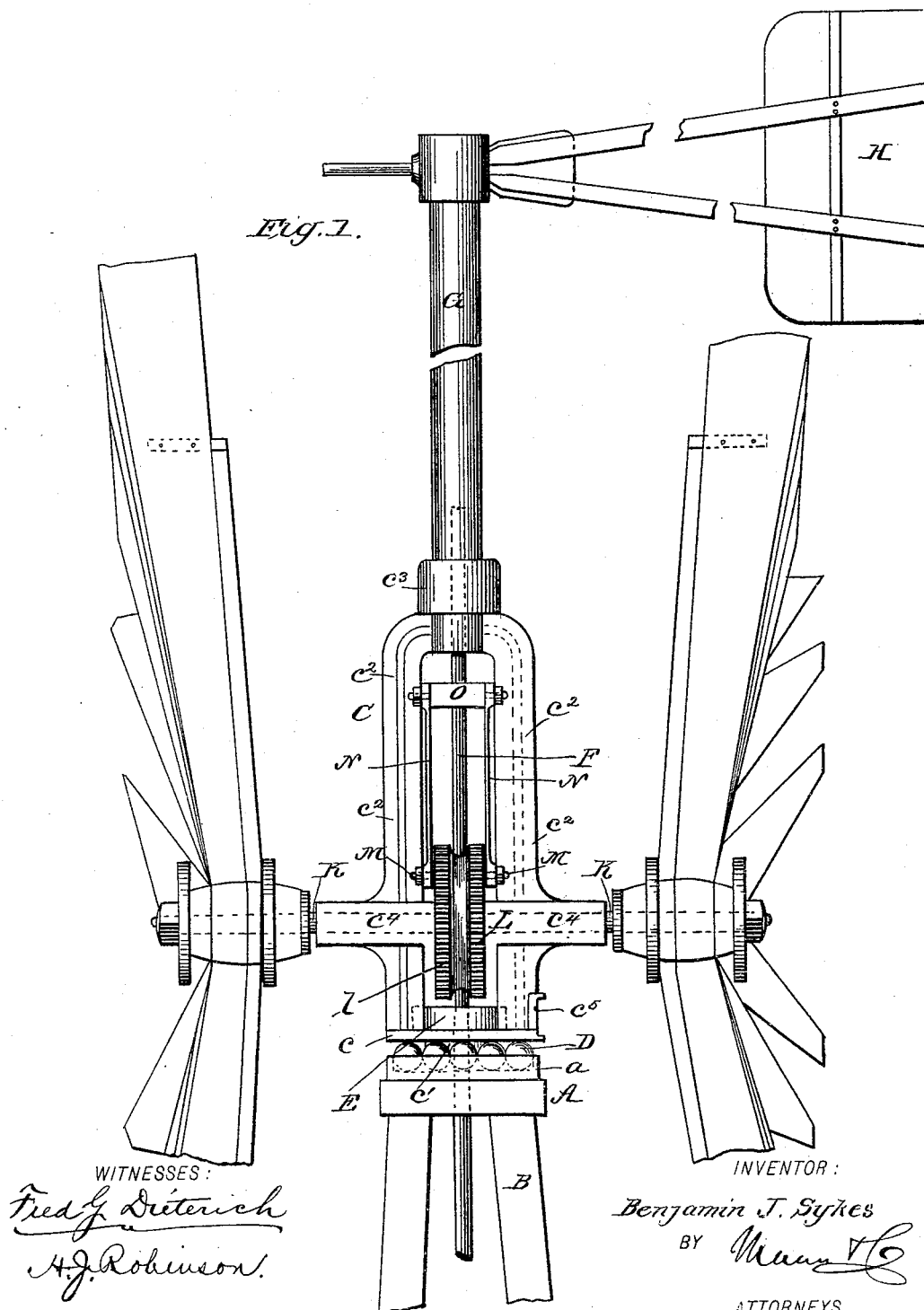
(No Model.)

2 Sheets—Sheet 1.

B. J. SYKES.
WIND WHEEL.

No. 493,533.

Patented Mar. 14, 1893.



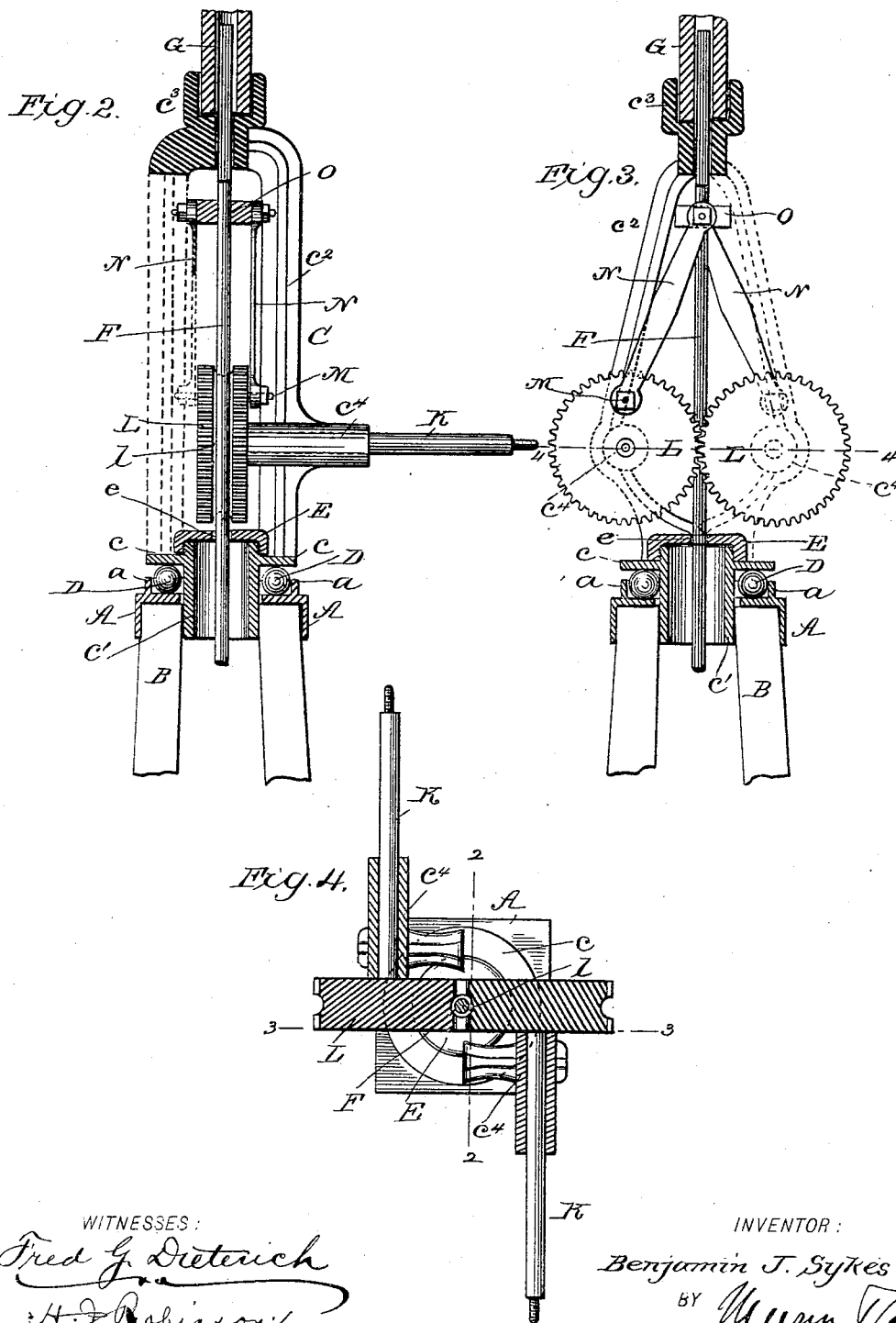
(No Model.)

2 Sheets—Sheet 2

B. J. SYKES.
WIND WHEEL.

No. 493,533.

Patented Mar. 14, 1893.



WITNESSES:

Fred G. Dieterich
H. J. Robinson

INVENTOR:

Benjamin J. Sykes
BY *Munn & Co*
ATTORNEYS

UNITED STATES PATENT OFFICE.

BENJAMIN J. SYKES, OF SYKESVILLE, PENNSYLVANIA.

WIND-WHEEL.

SPECIFICATION forming part of Letters Patent No. 493,533, dated March 14, 1893.

Application filed June 10, 1892. Serial No. 436,281. (No model.)

To all whom it may concern:

Be it known that I, BENJAMIN J. SYKES, residing at Sykesville, Jefferson county, in the State of Pennsylvania, have invented a new and useful Improvement in Wind-Wheels, of which the following is a specification.

This invention relates generally to wind wheels and particularly to the improved connections between the power shaft and plunger or operating rod.

The object of my invention is to provide a simple and durable contrivance of this character, which utilizes the power of two wheels simultaneously, and also equalizes any difference in speed that may exist between said wheels which prevents jerking or binding upon one side of the plunger rod, and a further object of my invention is to so construct the various parts that the entire machine shall be perfectly balanced, thus adding great strength and durability to the machine.

With these objects in view my invention consists in the peculiar construction of the several parts and their novel arrangement all of which will be fully described hereinafter and pointed out in the claims.

In the drawings forming a part of this specification Figure 1 is a side elevation of my improved wind wheel. Fig. 2 is a sectional view on the line 2—2 of Fig. 4. Fig. 3 is a sectional view on the line 3—3 of Fig. 4, and Fig. 4 is a horizontal section on the line 4—4, Fig. 3.

In carrying out my invention, I employ a cap plate A, which is rigidly secured upon a mast or derrick B, of the usual or any approved pattern. Above the cap plate A, is arranged the wheel casting C, said casting having a flat annular base c , and a depending collar c' , which passes through the central aperture of the cap plate.

The plate A is formed with an upwardly projecting annular flange a , which, in connection with the collar c' produces an annular groove, within which are arranged a series of anti-friction balls, D, upon which the base plate of the wheel casting rests and turns. The collar c' projects a short distance above the base c and is threaded externally as shown. A guiding cap E is screwed upon this end of the collar, said cap having an aperture e just large enough to permit the reciprocation of the plunger rod F therethrough. Standards

c^2 c^3 are formed upon the base plate c at diagonally opposite corners of the same, said standards terminating at their upper ends in a tubular guiding head c^3 in axial alignment with the center of the base. The upper end of the plunger rod works in the head c^3 and within this head is fitted a tube or shaft G, to which a vane H is attached. Horizontal bearings c^4 c^4 are formed upon the standards c^2 near their lower ends, said bearings projecting laterally from the standards in opposite directions, and journaled in these bearings are the wheel shafts K K. Gear wheels L L are mounted upon the inner ends of the wheel shafts K, said wheels meshing with each other midway between the standards and in order to permit these wheels to so mesh and at the same time permit the reciprocation of the straight plunger rod, I form each of the gears with a central, annular, peripheral groove l of such a depth that when the wheels mesh a circular opening is produced between the same sufficient to permit the operation of the rod F.

Wrist pins M M are mounted upon the gears S S, and connected with said pins are the pitman rods N N, the upper ends of said rods being connected with the cross head O rigidly secured to the plunger rod. If desired a centering guide (not shown) may be arranged within the derrick and a storm vane attached to the wheel casting lugs c^5 being formed for that purpose.

The upper end of the plunger rod is polygonal in cross section, and the opening in the head c^3 is correspondingly shaped, and by means of this construction the rod will be turned simultaneously with the casting, and all strain taken off the cross head, pitmen and wrist pins. The plunger rod is always kept in the proper position by means of the tubular head c^3 , the cap E and the grooved gear wheels L. It is essential to a perfectly balanced machine that the gears, pitmen and plunger rod should be arranged symmetrically with relation to the axial line of the machine and this I have accomplished by arranging the standards at the corners, the gears in alignment, and providing the peripheral grooves which permit the passage of the plunger rod between the gears. It will thus be seen that the machine is perfectly balanced which greatly facilitates the operation of the same.

In operation one of the wheels is turned to face the wind, and as the back of the other wheel corresponds with the face of the one in the wind, said wheels will revolve simultaneously in opposite directions. The wheels operate the gears, which meshing with one another equalize any inequality in speed between the two wind wheels, and thus cause the pitmen to act in concert upon the cross head of the plunger rod and prevent any jerking or binding upon either side. From this it will be seen that I provide a simple device which will utilize double the quantity of wind of an ordinary wheel, and one in which all of the parts are equalized, operating in perfect harmony, and thus adding strength and durability to the machine.

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

1. In a wind wheel, the combination with a wheel casting, of the peripherally grooved meshing gears journaled thereon, the plunger rod working between the gears and the pitmen connecting the gears and plunger rod, and a wind wheel mounted upon the journal shaft

of each grooved gear substantially as shown and described.

2. In a wind wheel, the combination with a wheel casting suitably mounted of the oppositely arranged wheel shafts journaled therein, the peripherally grooved meshing gears, the plunger rod, pitmen and vane shaft, and the wind wheels mounted upon the ends of the wheel shafts all arranged substantially as shown and described.

3. In a wind wheel, the combination with a vanecasting consisting of a base, bearing standards, and tubular head of the oppositely arranged power shafts, the gears mounted upon said shaft and meshing with each other midway between the standards, said gears having mating peripheral grooves, the plunger rod working between the gears and through the head and base of casting and the pitmen connecting the gears and plunger rod, substantially as shown and described.

BENJAMIN J. SYKES.

Witnesses:

SOLON C. KEMON,
CHAS. E. BROCK.