

(No Model.)

2 Sheets—Sheet 1.

G. H. BROWN.
WINDMILL DERRICK.

No. 495,662.

Patented Apr. 18, 1893.

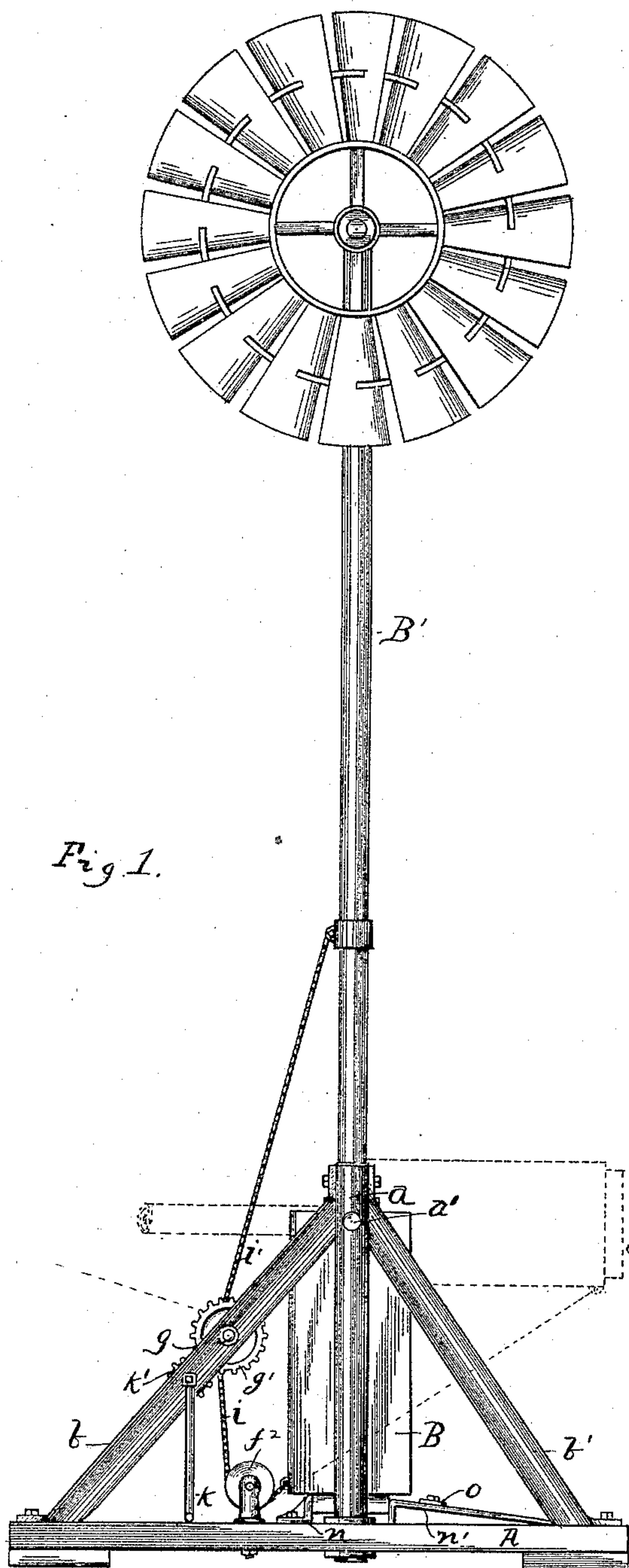


Fig. 1.

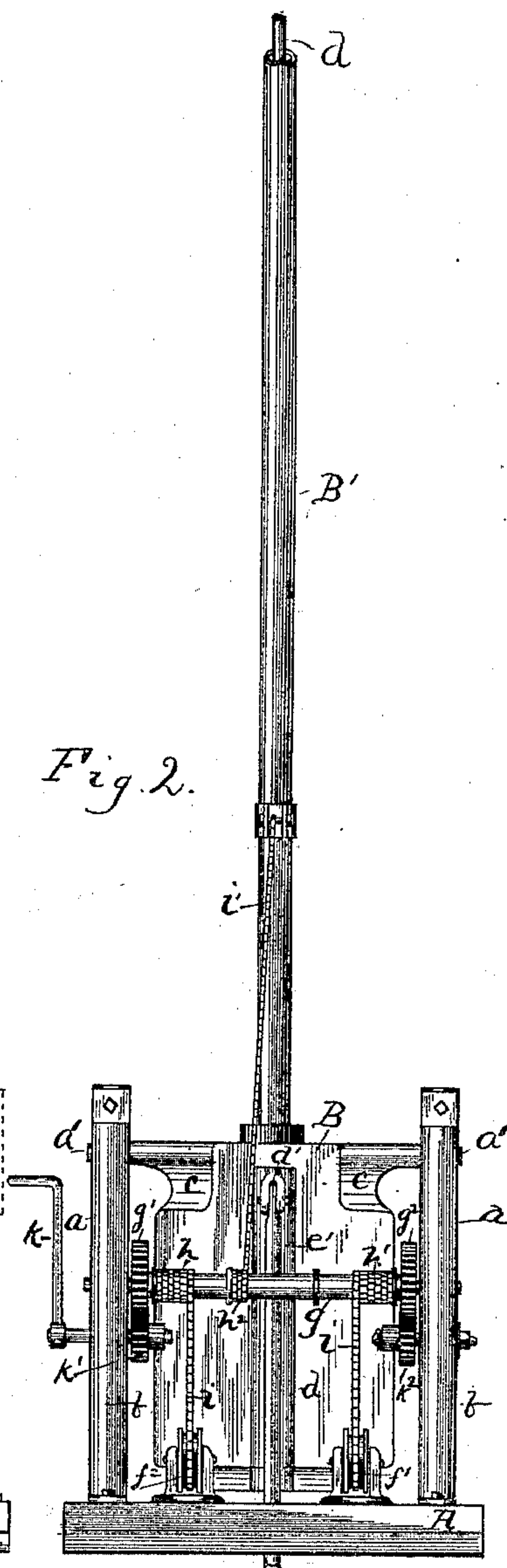


Fig. 2.

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INVENTOR,

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BY

Terence M. Carthy,
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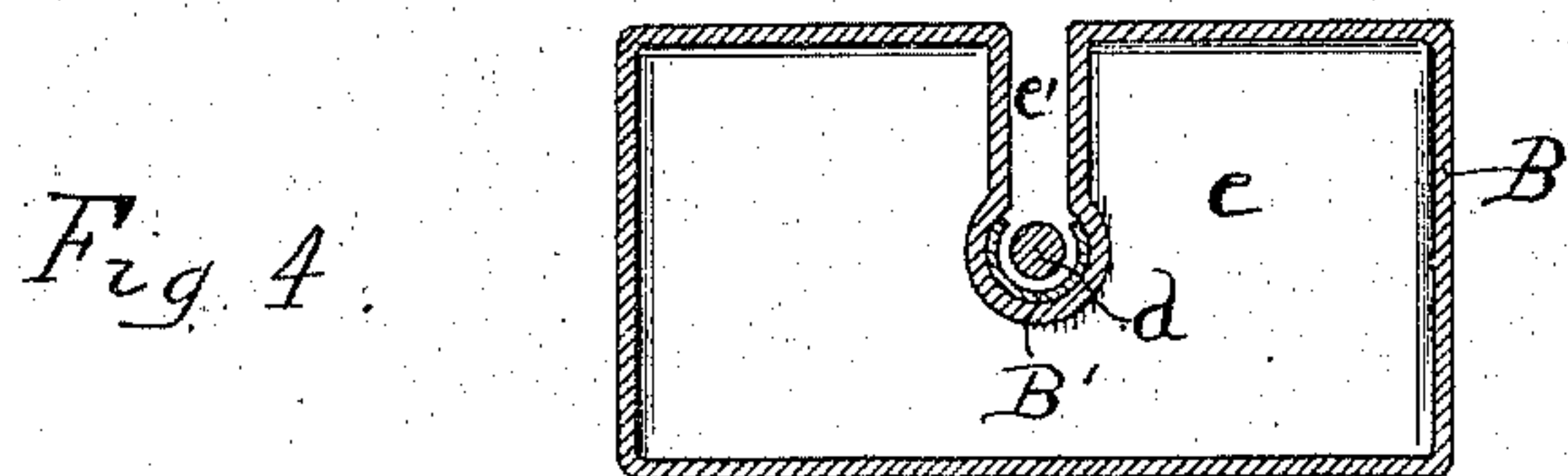
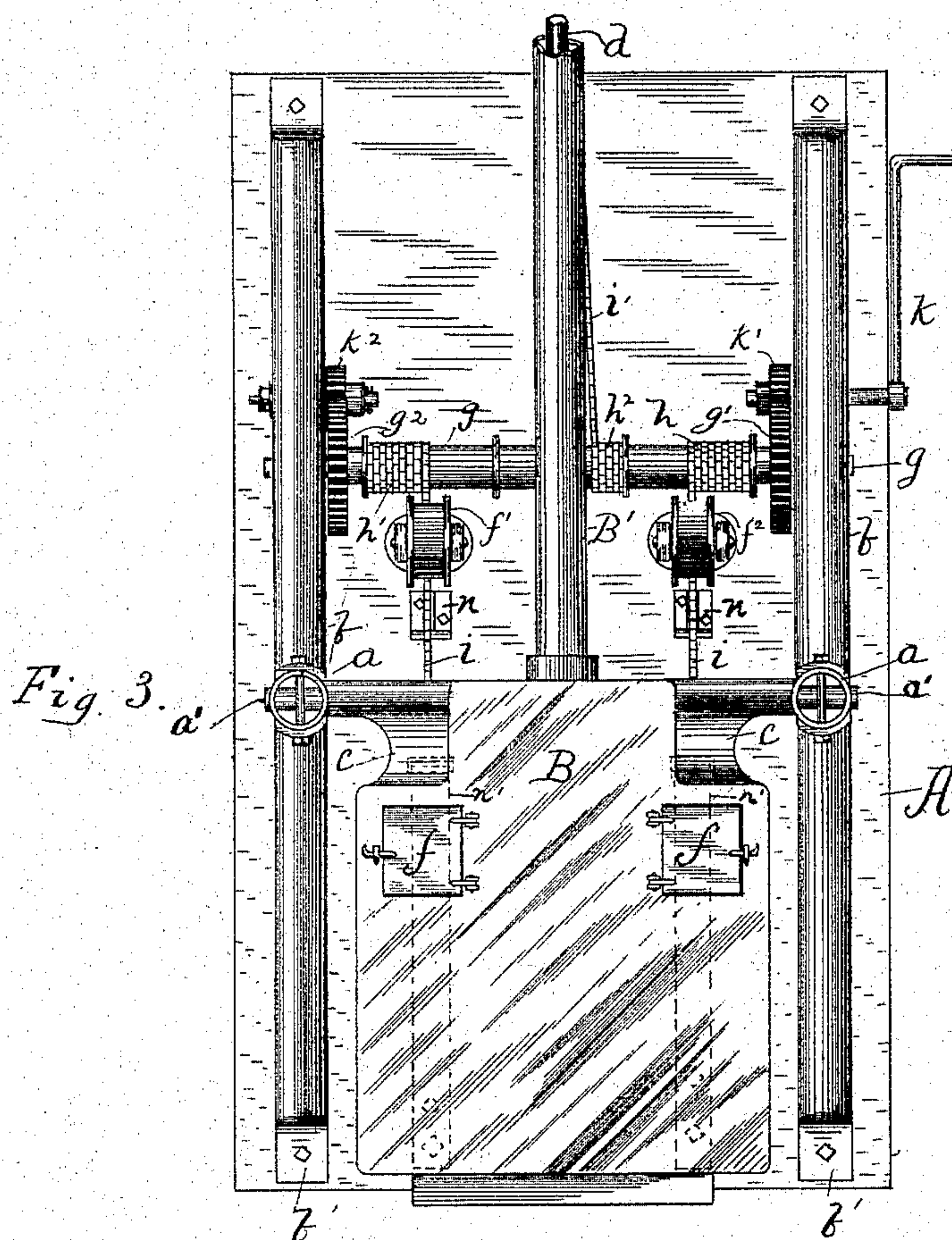
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UNITED STATES PATENT OFFICE.

GILBERT H. BROWN, OF DAYTON, OHIO.

WINDMILL-DERRICK.

SPECIFICATION forming part of Letters Patent No. 495,662, dated April 18, 1893.

Application filed February 10, 1893. Serial No. 461,714. (No model.)

To all whom it may concern:

Be it known that I, GILBERT H. BROWN, of Dayton, county of Montgomery, State of Ohio, have invented a new and useful Improvement in Windmill-Derricks, of which the following is a specification.

My invention relates to new and useful improvements in windmill derricks or tilting towers for wind wheels.

10 The object of the invention is to provide a windmill tower having a considerable reduction in weight as compared to a construction wherein the tower consists partially or wholly of numerous braces, cross rods, &c., through-
15 out its length; a tower, which, when elevated to a serviceable position, offers only a minimum resistance to the air; this object I accomplish by providing a tower consisting of a tubular shaft having its braces and fulcrum
20 near its lower extremity, on a ground derrick, by means of which it may be easily lowered from a vertical to a horizontal position for needed repairs; to oil the wheel gearing, or when it becomes necessary to protect the de-
25 vice from disastrous weather.

A further object is to construct the base of the tower so that the necessary ballast may be applied thereto to counter-balance the weight on the upper portion of the tower,
30 after shipment and when the same is in the hands of the consumer, thereby greatly decreasing the weight and consequently the cost of transportation.

A further object of my invention is to provide a tilting tower of tubular iron with the pumping rod connected and running through
35 said tower, and that may be manipulated without having to disconnect the pumping rod whenever it becomes necessary to lower the same. Other points will be mentioned in
40 the specification and the essential features embraced in the claims.

The drawings herewith presented are referred to as follows: Figure 1. is a side elevation showing my improved windmill tower
45 and derrick with a wind wheel on the top thereof. The dotted lines show the position assumed when the tower is lowered. Fig. 2. is a front elevation, with a portion of the top
50 of the tower broken, and the upper end of the pump rod exposed, also broken off. Fig. 3. a plan view showing the tower lowered upon

the derrick, to a horizontal position, the tubular portion of the tower, together with the pump rod, is broken off. The spring bars
55 $n'-n'$ are shown in broken lines in this view. Fig. 4. a transverse section of the base anywhere near the center thereof, showing the same to be of hollow structure.

The letters representing the different parts
60 will be found to refer to the same parts throughout the different views.

A indicates the floor or foundation to which are secured upright standards $a-a$ and inclined braces b and b' therefor. These parts
65 may be constructed of metal or wood, provided the latter has sufficient strength to withstand the strain incident thereto.

B indicates the base or lower part of the tower with projections or wings c terminating
70 in trunnions $a' a'$ by means of which the tower is provided with a fulcrum in the upright standards $a-a$. The base and wings are integral parts; the former portion being constructed with a hollow interior e , and a longitudinal
75 channel e' as shown in Figs. 2 and 4; the purpose of the hollow space thus provided, is for the introduction of ballast through the doors $f-f$, such as sand or other weighty substance, more or less of which may be placed
80 therein, according to the weight of the wheel and other top connections, for the purpose of counterbalancing the same. This ballast, it will be understood, is to be placed in the base,
85 when the mill is being or has been placed in an operative position. The upper or tubular portion of the tower B' is rigidly attached to the base in any suitable way. The pumping
rod d penetrates the tower vertically through the channel e' and is provided near the upper
90 terminal of said channel with a knuckle joint d' which permits the tower to be tilted without being obliged to uncouple or disconnect the pump rod, in a way that will be readily
understood.

f' and f^2 indicate pulleys pivoted to the
95 floor A.

The letter g denotes a transverse shaft pivoted in the brace rods b with gear wheels g' and g^2 on the ends thereof, and winding spools
100 h, h' and h^2 , chains i, i' or other similar means are secured to the base A, and passed around the pulleys f' and f^2 . A second chain i' is secured to the tower and adapted to be wound

on spool h^2 , in an opposite direction to the winding of chains i, i' , the object of this chain i' is to accelerate the movement when it is desired to remove the tower from a vertical to a horizontal position. The shaft supporting the spools is rotated by means of the winding crank k pivoted to the inclined brace, and provided with a pinion k' adapted to mesh with the gear wheel g' , and thus the tower may be lowered or elevated as the case may be; a similar pinion k^2 equalizes the bearing of shaft g . Upon being lowered to a horizontal position, the tower and upper portion of the pump rod assume a position at right angles to that portion of the pump rod below the knuckle joint, by providing the slot e' . The tower is maintained in a vertical position by means of stops n and n' , and the spring bars n' and n' , these spring bars are rigidly attached to the floor A at one end, the other end terminating downwardly at right angles, and adapted to enter openings in the floor when the springs are pressed downwardly by means of the foot lever, o , to which pressure may be conveniently applied whenever it becomes necessary to lower the tower by removing the base thereof from between the ends of the spring bars n' and the stops n and n' where it is held securely when the tower is in a vertical position.

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

1. In a windmill derrick, a tower provided with an enlarged base with a hollow interior, a vertical channel extending longitudinally through one side of the base and openings for the introduction of ballast, substantially as described.
2. In a windmill derrick, the combination with a pump rod adapted to vibrate by means of a joint therein, of a tower, the lower extremity of which is provided with an enlarged base having a fulcrum on upright bearings; said base having a longitudinal channel extending through one side thereof in which

the joined portion of the pump rod is permitted to vibrate, said base also having a hollow interior adapted to hold ballast, whereby the weight on the upper portion of the tower is counter-balanced, substantially as described.

3. In a windmill derrick, the combination of a hollow shaft, one end of which is adapted to receive a wind wheel, the other end provided with an enlarged hollow base, with a longitudinal channel therein and the doors $f-f$, upright standards having braces attached thereto, a transverse shaft pivoted to two of said braces, a winding crank, intermeshing gearing between said crank and transverse shaft, chain connections between the base and tubular portions of the tower, and the winding mechanism, substantially as described.

4. In a windmill derrick, the combination of the wind wheel shaft herein described adapted to receive ballast at one end to maintain the same in equipoise, the fulcrum provided therefor by means of the upright standards $a-a$, secured to the supporting frame by the braces b and b' , the shaft g with gear wheels g' and g^2 , the winding crank k with pinion k' and means for connecting the base and said wind wheel shaft with the winding mechanism, substantially as described.

5. In a windmill derrick, the combination of the hollow shaft terminating at its lower extremity in a rectangular base having a hollow interior and a longitudinal channel and a fulcrum on upright standards secured to the supporting frame, means for locking said shaft in a vertical position consisting of stops $n-n$ and the spring bars n' and n' , substantially as herein described.

In testimony whereof I have hereunto set my hand this 26th day of January, 1893.

GILBERT H. BROWN.

Witnesses:

GEO. H. WOOD,
R. JAY. McCARTY.