

GILES MABIE.
Improvement in Wind Mills.

No. 124,499.

Patented March 12, 1872.

Fig. 2

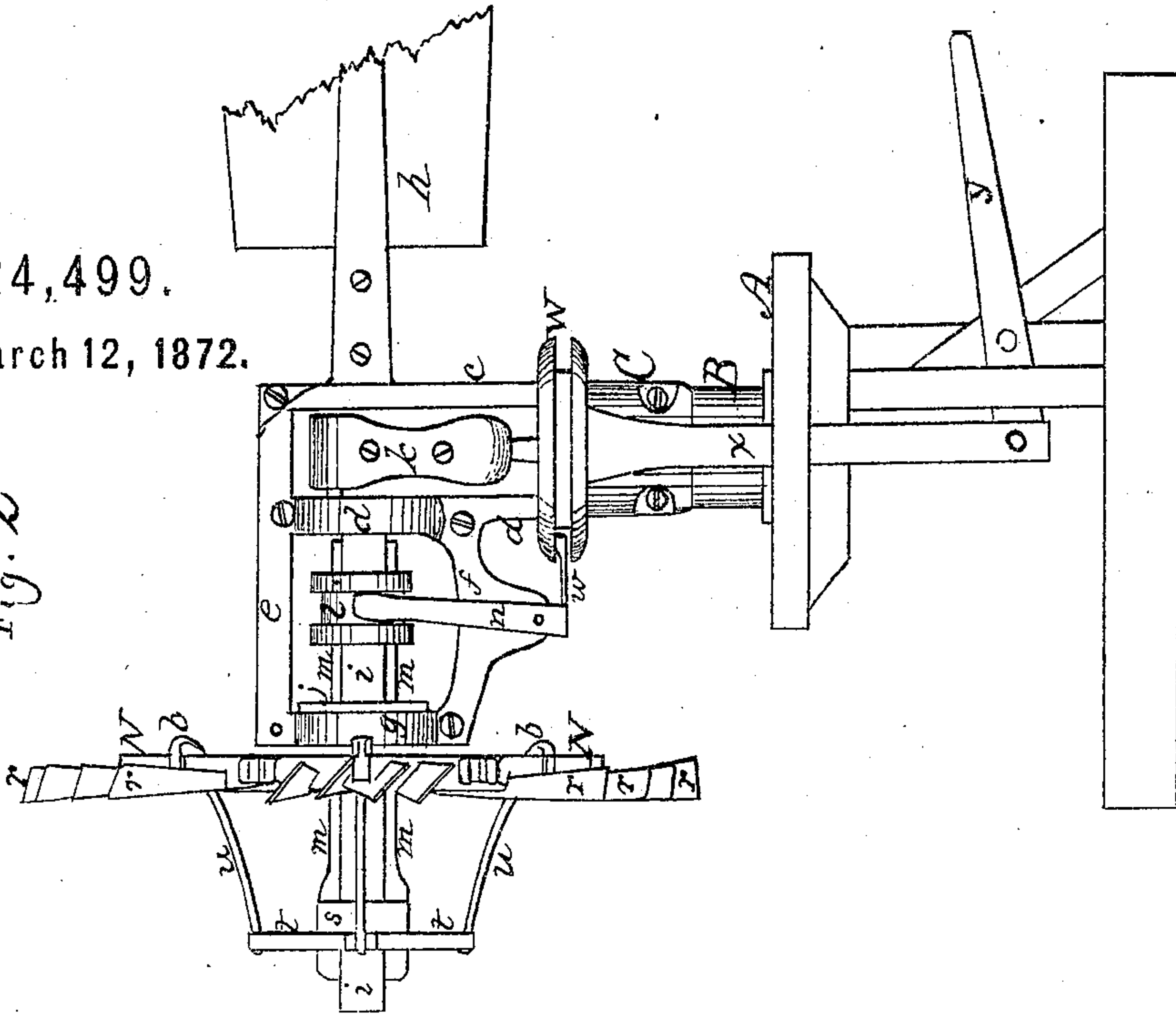
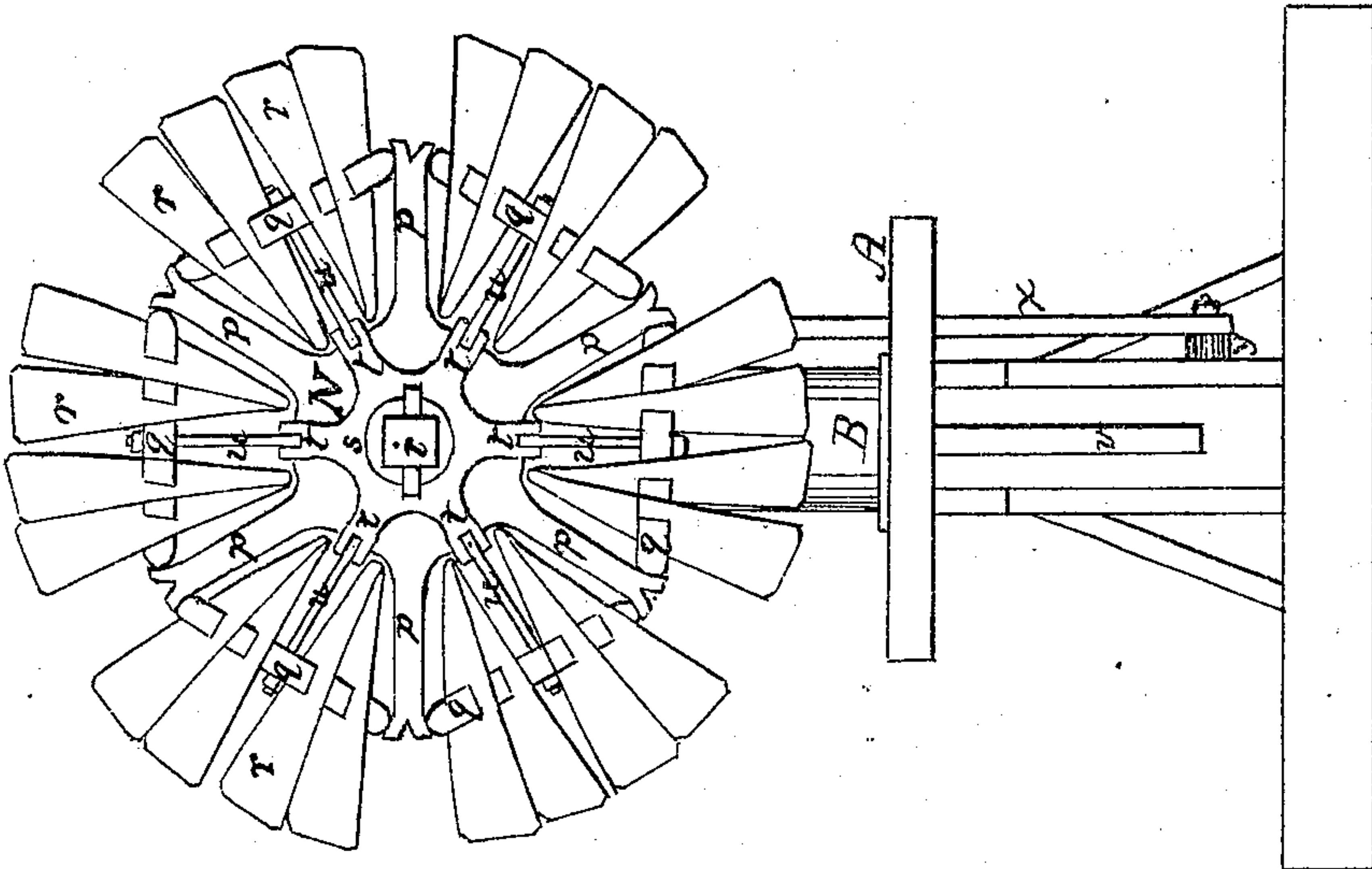


Fig. 1



Witnesses
Sydney C. Smith.
Arthur D. Kerr.

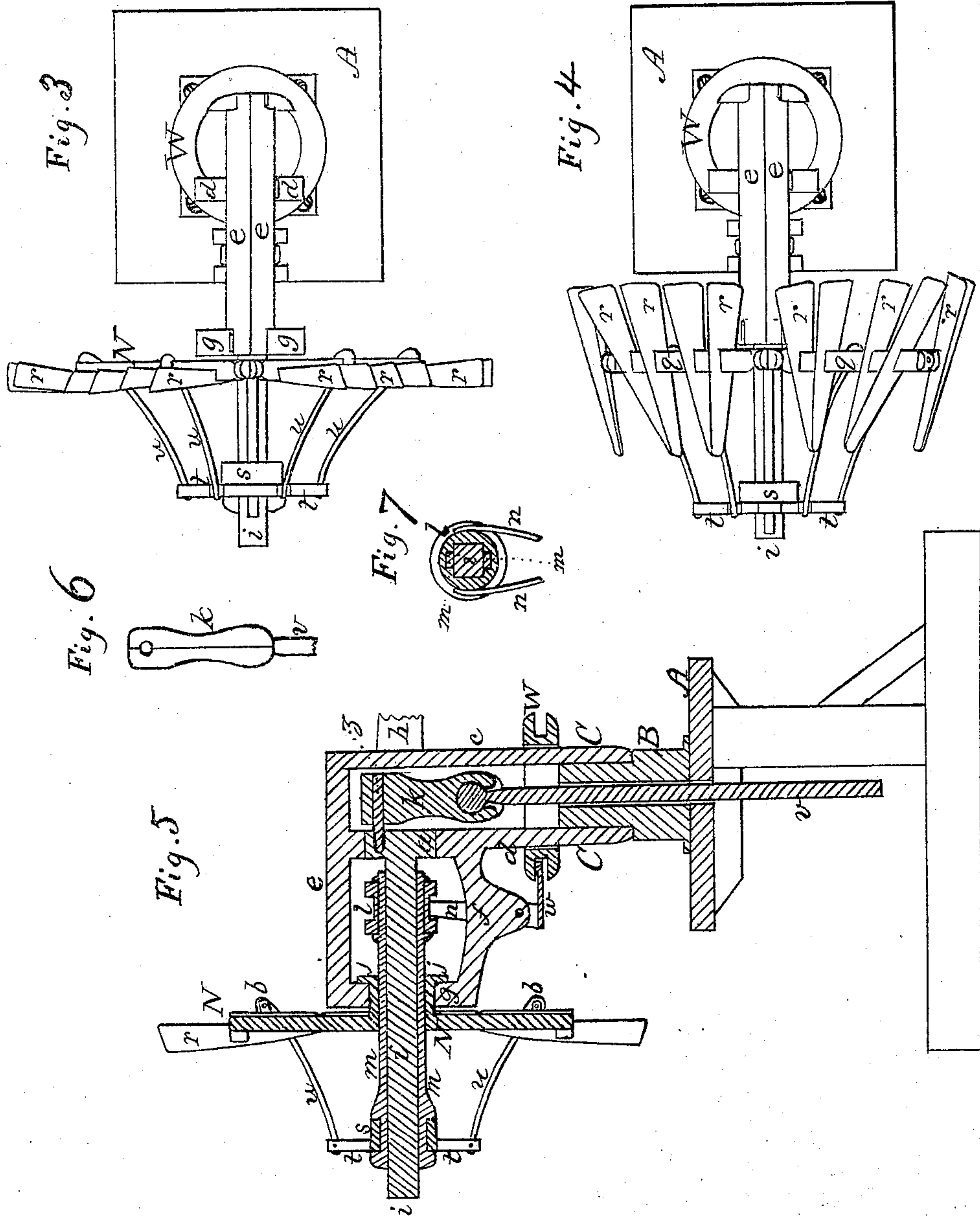
Inventor.
Giles Mabie
By his Attorney J. C. Robbins

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Leicester E. Smith,
Arthur D. Herr.

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UNITED STATES PATENT OFFICE.

GILES MABIE, OF DIXON, ILLINOIS.

IMPROVEMENT IN WINDMILLS.

Specification forming part of Letters Patent No. 124,499, dated March 12, 1872.

To all whom it may concern:

Be it known that I, GILES MABIE, of Dixon, in the county of Lee and State of Illinois, have invented sundry new and useful Improvements in Windmills; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawing which forms a portion of this specification.

Figure 1 of said drawing is an elevation of my improved windmill, in which a front view of the wind-wheel is shown; Fig. 2, an elevation, in which a side view of said wind-wheel is shown; Fig. 3, a top view representing the fans of the wind-wheel in an expanded or operative position; Fig. 4, a top view representing the said fans in a withdrawn or non-acting position; Fig. 5, a vertical section of said windmill; and Figs. 6 and 7 are representations in detail of detached portions of the same.

The same letters indicate the same parts in the drawing.

The platform A, which receives my improved windmill, may be supported in any suitable manner. The supporting pivot-standard B, Fig. 5, is firmly secured to the platform A. The wind-wheel-supporting metallic frame C *c d e f g* is cast in two corresponding sections of the shape shown in Figs. 2, 3, and 5 of the drawing, the shape of said sections being such that when they are united to each other the portions C thereof form a tube, which can be received upon the shank or journal portion of the supporting standard B, as shown in the drawing, while the portions *c d e f g* of said frame form supports for the journals of the wind-wheel-shaft *i*, and also a space for the pitman-head *k* to work in, all as clearly shown in Fig. 2.

The wind-wheel of my improved windmill is constructed, supported, and operated in the following manner: A main wheel-head, N, having a flanged journal-tube, *j*, and a series of radial arms, *p*, is firmly secured to the shaft *i*, and a series of fan-shafts, *q*, are pivoted between the outer ends of said radial arms. The respective series of fan-blades *r* are secured in the desired oblique position to their respective fan-shafts *q* in any usual or proper manner. The curved outer connections *g* of the arms *e f* of the wind-wheel-supporting frame embrace the flanged journal *j* of the wheel-head N, and give the requisite bearing and lateral support

thereto, while the enlarged journal-head *a* on the inner end of the wheel-shaft *i* is embraced and supported by the curved portions of the inner connections *d* of said arms. A radially-armed and movable head, *s*, is placed on the outwardly-projecting portion of the wheel-shaft *i*. The arms *t* of said movable head correspond in number with that of the radial arms *p* of the wheel-head N, but are considerably shorter, and their respective positions alternate with that of the said longer radial arms *p*. Ears *b*, projecting from the central portions of the respective fan-shafts *q*, are jointed to the ends of the series of connecting-rods *u*, whose opposite ends are jointed to the ends of the radial arms *t* of the movable head *s*, as shown in Fig. 5. Connecting-rods *m*, placed longitudinally on opposite sides of the wheel-shaft *i*, serve the purpose of connecting the movable head *s* with the grooved thimble *l* on said shaft, as shown in Fig. 5. The rods *m* pass through notches in the journal *j* of the wheel-head N, which notches are of sufficient size to allow said rods to be moved freely upon the wheel-shaft *i*. The levers *n*, whose longer legs pass into the groove in the thimble *l*, are pivoted to opposite sides of the united arms *f* of the wind-wheel-supporting frame, while the shorter legs of said levers are firmly united to one end of the single horizontal lever *w*, whose opposite end is received into the annular groove in the ring W, which ring embraces the united portions C *c d* of the wind-wheel-supporting frame, and with sufficient looseness to enable it to be freely moved thereupon. A stiff rod, *x*, descends from the grooved ring W, through a hole in the platform A, to its jointed connection with the lever *y* beneath said platform. It will therefore be perceived that by depressing the outer end of the lever *y* the action thereof upon the ring W, the levers *w* and *n*, and the grooved thimble *l* will move the rods *m* and the sliding head *s* outward upon the wheel-shaft *i*, and by so doing will throw the connected series of fans *r* into the operating position shown in Figs. 1 and 2. It will also be perceived that by elevating the outer end of the lever *y* the connected series of fans *r* will be thrown into the non-operating position shown in Fig. 4. The outer end of the lever *y* must be weighted to such a degree as will enable it to resist the tendency of any

ordinary or safe pressure of the wind from inclining the series of fans into a non-conducting position. A pitman-head, *k*, is combined with the enlarged inner head *a* of the wheel-shaft *i* by means of the crank-pin *z*, as shown in Fig. 5. The pitman-head *k* is cast in two sections, and of such a shape that when they are combined with each other they embrace the spherical head of the pitman *v* and form a ball-and-socket joint between the two. The pitman *v* may be connected with any machinery that is to be operated by the wind-wheel in any well-known or usual manner.

It will be perceived that the combination of the sections of the wind-wheel-supporting frame with each other and with the pivot-standard *B* is such as to enable the wind-wheel to be freely turned upon said standard by the action of the wind upon the vane of the wind-wheel.

I claim as my invention—

1. The bisected metallic frame *C c d e f*, which perfectly and efficiently embraces and supports the main wind-wheel shaft *i* and the several parts of the machine that are combined therewith, substantially as herein set forth.

2. The combination of the wind-wheel shaft *i* with the ball-shaped head of the pitman *v* by means of the crank-pin *z* and the united joint-sections *k*, substantially as herein set forth.

In testimony that the foregoing is a full and exact specification of my improvements in windmills I hereunto subscribe my name this 21st day of August, A. D. 1871.

GILES MABIE.

In presence of—

GEO. A. BARDWELL,
JOHN D. BOARDMAN.