

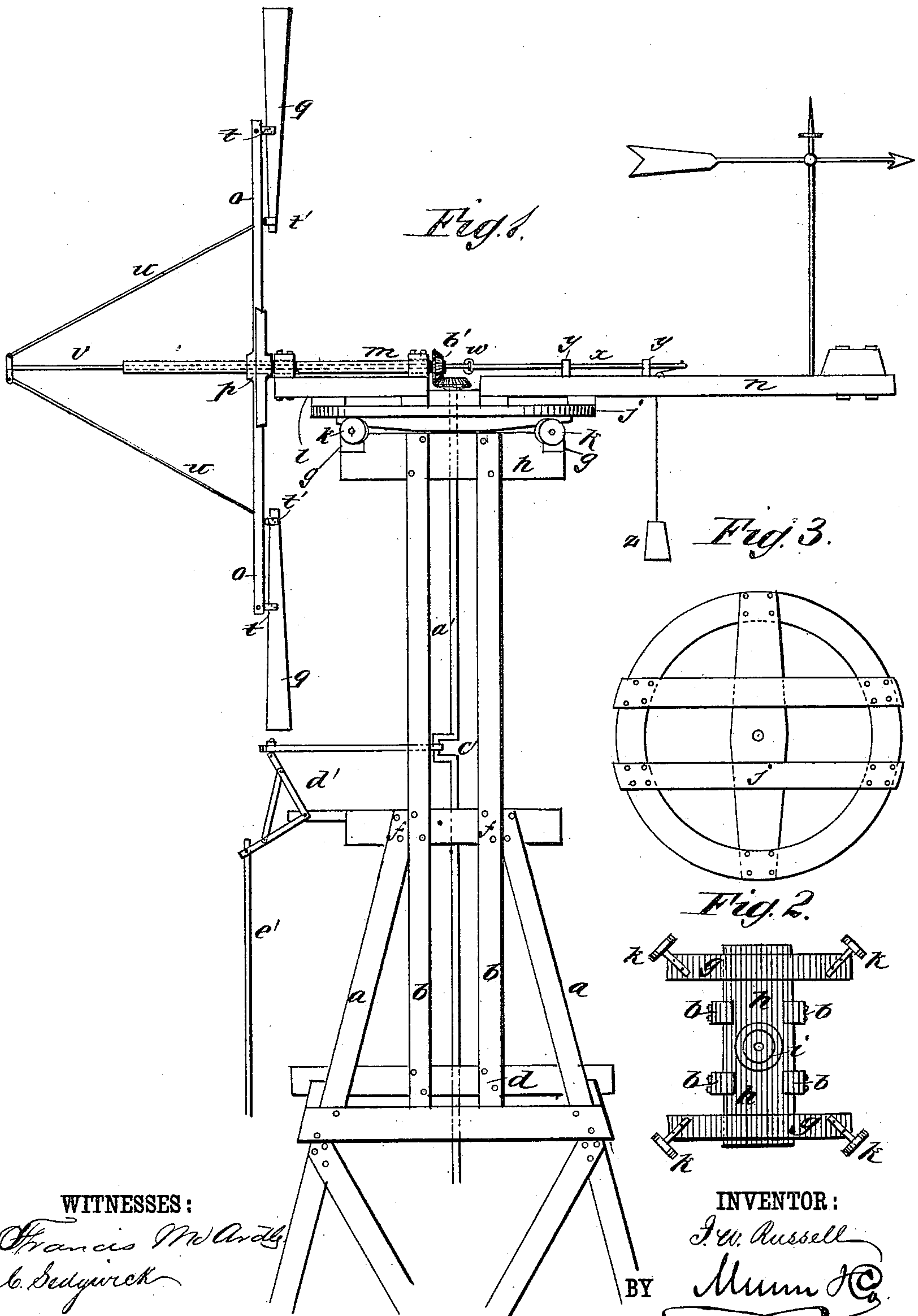
(No Model.)

I. W. RUSSELL.

WINDMILL.

No. 270,487.

Patented Jan. 9, 1883.



WITNESSES:
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UNITED STATES PATENT OFFICE.

IRA W. RUSSELL, OF STORM LAKE, IOWA.

WINDMILL.

SPECIFICATION forming part of Letters Patent No. 270,487, dated January 9, 1883.

Application filed September 2, 1882. (No model.)

To all whom it may concern:

Be it known that I, IRA W. RUSSELL, of Storm Lake, in the county of Buena Vista and State of Iowa, have invented a new and Improved Windmill, of which the following is a full, clear, and exact description.

My invention relates to improvements in windmills; and it consists in the peculiar construction of the tower and turn-table, as hereinafter fully described, and pointed out in the claim.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation of the windmill and the upper portion of the tower as contrived according to my invention. Fig. 2 is a top view of the tower. Fig. 3 is a plan view of the turn-table.

On the upper part of any suitable base portion, *a*, of a tower I arrange four vertical posts, *b*, parallel to each other, by suitable connections, *d*, at their lower ends, and at *f* a suitable distance above said ends, on the upper ends of which I construct a flat top or table consisting of cross-bars *g* and *h*, whereon the bearing *i* for the bottom center of the turn-table *j* and the rollers *k* for the rim of said turn-table are mounted, as shown, making a simple and cheap structure for a windmill.

The turn-table has the beam *l* mounted radially on one side of the top, for carrying the wheel and its shaft *m*, and opposite thereto it has the balance-beams *n*.

The wheel, which I propose to make with arms *o*, of wood, bolted into a suitably-formed hub, *p*, for a simple and cheap structure, will have the vanes *q* jointed to it at *t*, the pivotal points being a little out of the center of the transverse plane of the vanes to cause them to be turned on their pivots *t* by the unequal pressure of the wind, and said vanes in each section of the wheel are connected at *t'*, and

each section is connected by a rod, *u*, with a shifting-rod, *v*, located in the bore of the shaft *m*, made hollow for the purpose, the said rod being capable of sliding therein, but revolving with the shaft, and being swiveled at *w*, with a rod, *x*, located on the balance-beams *n* in bearings *y*, allowing it to slide, and having the weight *z* suspended from it to counteract the pressure of the wind on the vanes, the weight being to pull the vanes into the wind, and said vanes being so adjusted and given a larger wind-surface at their outer ends that the tendency of the wind is to turn them endwise with the wind, so that in case of excessively strong winds the wheel will stop, the vanes being turned endwise of it. In this arrangement the wheel itself swings around to the leeward of the tower, and thus does not require a tail to keep it in position. The shaft *m* gears with a vertical shaft, *a'*, by bevel-pinions *b'*, the shaft *a'* being located in the center, around which the wheel swings, so that the turning of the wheel with the wind does not affect the driving-gear. The shaft *a'* is provided with a crank, *c'*, which works a bell-crank, *d'*, from which a vertically-operating pump-rod, *e'*, is driven, besides the rotary shaft *a'* for other purposes.

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

In a windmill, the combination, with the base *a* and the turn-table *j*, of the posts *b*, attached to and extended above the base, the cross-bar *h*, attached to the upper ends of the said posts and provided with the bearing *i*, and the cross-bar *g*, attached to the ends of the said cross-bar *h* and provided with the rollers *k* on their ends, substantially as and for the purpose set forth.

IRA WILLIAMS RUSSELL.

Witnesses:

S. W. HOBBS,
E. I. SUTFIN.