

No. 607,668.

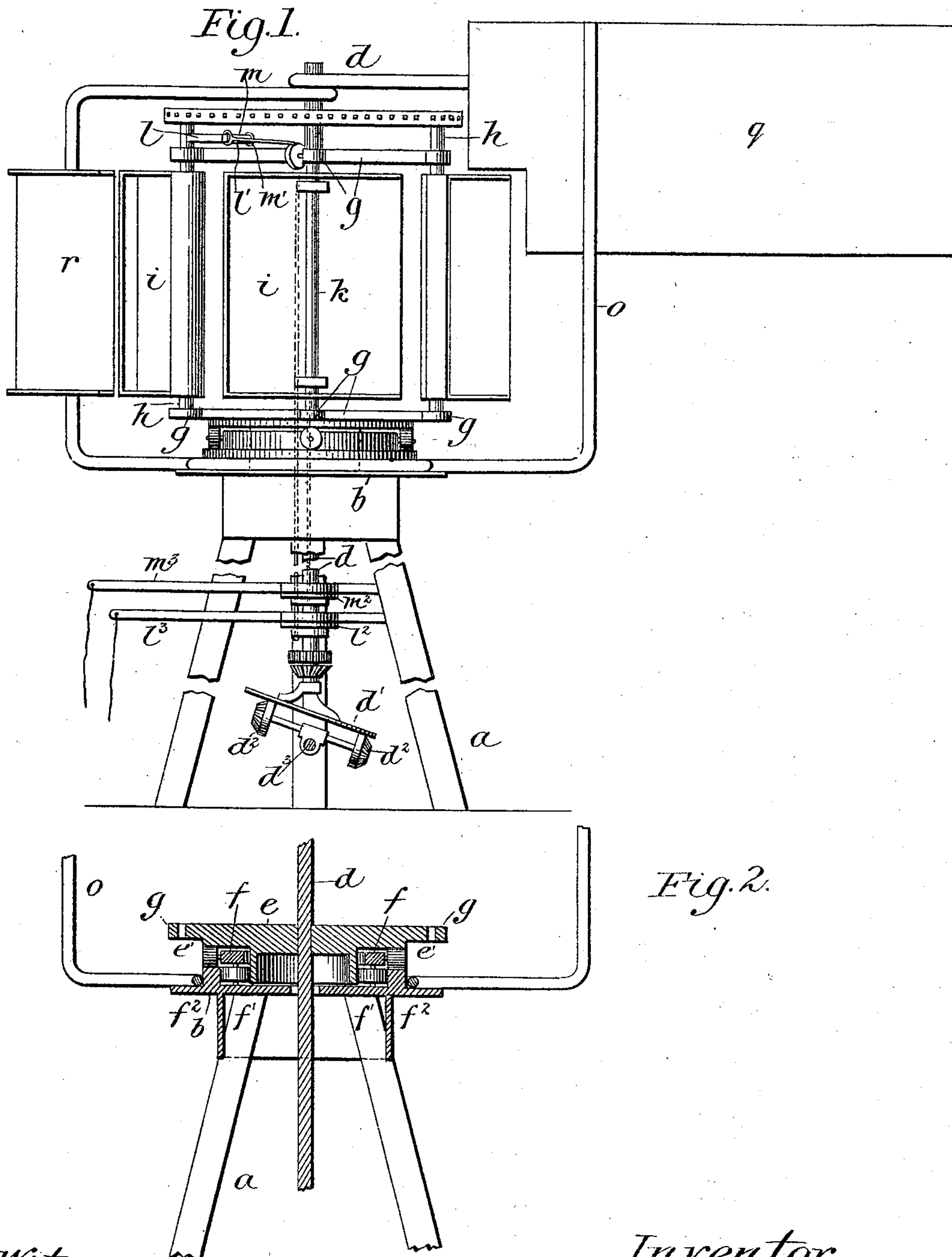
Patented July 19, 1898.

J. B. TINSLEY.
WINDMILL.

(Application filed Oct. 31, 1895.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses:

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E. C. Duffey

Inventor:

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Atty.

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2 Sheets—Sheet 2.

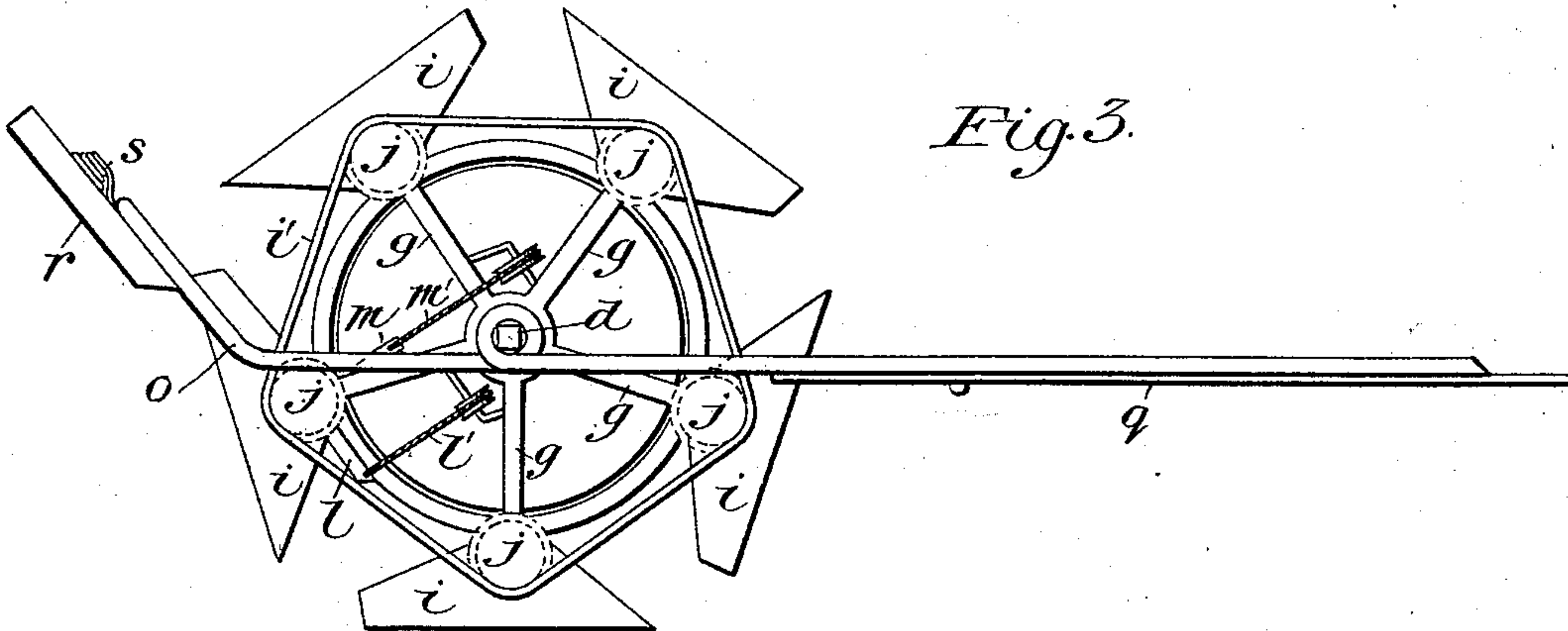


Fig. 3.

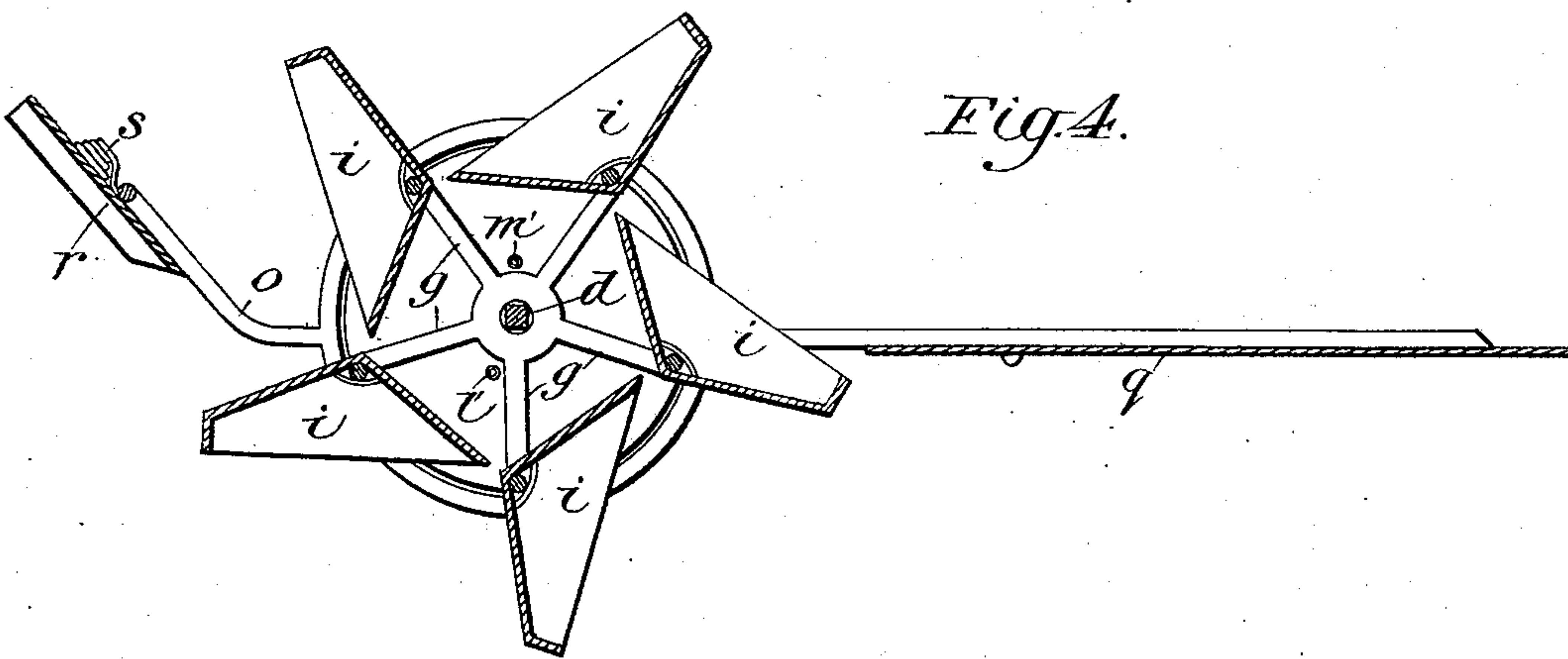


Fig. 4.

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UNITED STATES PATENT OFFICE.

JOSEPH B. TINSLEY, OF ANTHONY, KANSAS.

WINDMILL.

SPECIFICATION forming part of Letters Patent No. 607,668, dated July 19, 1898.

Application filed October 31, 1895. Serial No. 567,535. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH B. TINSLEY, of Anthony, in the county of Harper and State of Kansas, have invented certain new and useful Improvements in Windmills; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form part of this specification.

This invention relates to certain improvements in windmills.

The object of the invention is to provide an improved windmill comparatively simple and durable in construction and exceedingly efficient in action and easily and automatically controllable.

A further object of the invention is to provide improvements in details of constructions and arrangements of parts whereby a highly-efficient and powerful windmill is produced.

The invention consists in certain novel features of construction and in combinations and arrangements of parts more fully and particularly described hereinafter and pointed out in the claims.

Referring to the accompanying drawings, Figure 1 is a side elevation. Fig. 2 is a longitudinal vertical section through a portion of the mill. Fig. 3 is a top plan view showing the mill open, with the buckets in operative adjustment. Fig. 4 is a cross-sectional view through the buckets, showing the same closed, so as not to be rotated by the wind.

In the drawings, *a* indicates a suitable frame-tower having the top platform *b*, having a comparatively large central opening surrounded by the circular elevated track *c*, having the top and inside and outside bearings. *d* is the vertical windmill-shaft, extending vertically through said frame and a suitable distance above the same. This shaft is provided with any desired number and manner of power-transmitting means, such as gear-wheels, pulleys, or devices for converting rotary movement of the shaft into reciprocating motion, as shown by the inclined disk *d'* on the bottom of the shaft engaging the pulleys *d''*, engaging opposite sides of the

under side of said disk and mounted on lateral arms from the rock-shaft *d''*, mounted in the frame or tower, and which can be provided with means for transmitting the motion of said rock-shaft. Any desirable mechanism can be driven from this shaft by suitable driving means, which are not fully explained herein, as they form no part of my invention. The wind-wheel shaft is provided with a head *e*, rigid thereon and located within and above said track on the table of the tower. This head is circular at its periphery to form a circular bearing or track and has an outwardly-projecting horizontal flange *e'* from its upper end to form a circular track above the top bearing-surface of the said track on the table. *f* is the ring loosely surrounding the said head and normally out of engagement with the same and provided with the vertical wheels or pulleys *f'*, journaled on suitable studs or pins from the ring, and having diameter greater than the vertical height of the ring and traveling on the upper surface of said table-track and engaging the under surface of said flange of the head, so as to support the head on the track and permit the same to easily revolve with a minimum amount of friction. *f''* are horizontal pulleys journaled on studs depending from the under side of said ring and arranged between the head and the inner surface of said table-track, so as to take up all side play and reduce friction, so that the wind-wheel shaft will run very easily and respond quickly.

Parallel radial arms *g* extend from and are rigidly secured to the shaft above the tower-table. These arms have vertical bearings at their outer ends, in which the vertical shafts *h* of the vertical horizontally-turnable buckets *i* are journaled. These buckets are concaved on one side and correspondingly convexed on the opposite side and so formed that their concaved sides will catch and hold the wind and receive the full force and power thereof.

The upper ends of the bucket-shafts are provided with sprocket-pinions *j*, and endless sprocket-chain *k* meshes with all of the sprockets, so that all of the buckets will turn simultaneously and to the same degree.

One of the bucket-shafts is provided with the arms *l* and *m* and cords *l'* and *m'*, extended

from said arms, respectively, over suitable pulleys and downwardly through the head and along the shaft to the sleeves l^2 and m^2 , respectively, turning with the wind-wheel shaft, but movable longitudinally thereof, so that when the sleeve l^2 is forced down all of the buckets of the wind-wheel will be turned inwardly and their concaved faces toward the wind-wheel shaft, and hence out of operative position. When the other sleeve m^2 is forced down, all of the sprockets will be thrown outwardly into operative position. These sleeves are respectively controlled by suitable levers l^3 and m^3 , which can be provided with connections or other means of operating from any desired point. If desired, one or both of the levers can be weighted.

o is a horizontally-swingable frame surrounding the wind-wheel, with its upper portion loosely surrounding the upper end of the wind-wheel shaft above the wind-wheel and with its lower portion provided with a ring surrounding the track on the tower-table and resting and turning thereon. The upper rear portion of this frame is provided with a tail or vane q . The front end of this frame is provided with a shield or deflector r . This deflector is arranged at an incline and to one side of the plane of the axis of the wheel, so as to direct the wind into the open side of the buckets and so as to shield the concaved sides of the buckets as they move forwardly during rotation of the wheel, whereby the force to the wind is thrown into the buckets moving backwardly, and the power and speed of the wheel is materially increased. The said deflected shield is preferably journaled on the carrying-frame and yieldingly held in its normal position by a stiff spring s , so that the deflector will yield under excessive pressure, as during a gale or storm, and hence prevent possible damage.

It is evident that various changes might be made in the forms, arrangements, and constructions of the parts described without departing from the spirit and scope of my invention. Hence I do not wish to limit myself to

the exact construction herein set forth, but consider myself entitled to all such changes as fall within the spirit and scope of my invention.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. In a windmill, the combination of the windmill-shaft having radial arms extending therefrom and rigidly secured thereto at suitable distances apart, said arms having bearings at their outer ends and connecting cross-bars carrying pulleys, with vertical bucket-shafts journaled in said bearings, and having sprocket-wheels on their upper ends, an endless sprocket-chain meshing with the sprocket-wheels, arms extending at an angle from one of the bucket-shafts, and separate operative devices connected to each of said arms, all arranged as set forth.

2. In a windmill, the combination with the vertical buckets thereof of a swinging horizontal frame having rings loosely encircling the upper part of the windmill-shaft and the tower-table respectively, said frame being provided with a vane on its rear part and a deflector journaled on its front part and a yielding device to normally hold the deflector in place but which will allow it to yield under great pressure as set forth.

3. In a windmill the combination with the vertical buckets thereof, of a swinging horizontal frame having rings loosely encircling the upper part of the windmill-shaft and the tower-table respectively, said frame being provided with a vane on its rear part and a deflector on its front part at an angle to said vane, and a spring to normally hold the deflector in place, all arranged as set forth.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

JOSEPH B. TINSLEY. [L. S.]

Witnesses:

E. G. FOSTER,

F. M. ANDERSON.