

J. L. TAYLOE.
WINDMILL.

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1,265,137.

Patented May 7, 1918.

2 SHEETS—SHEET 1.

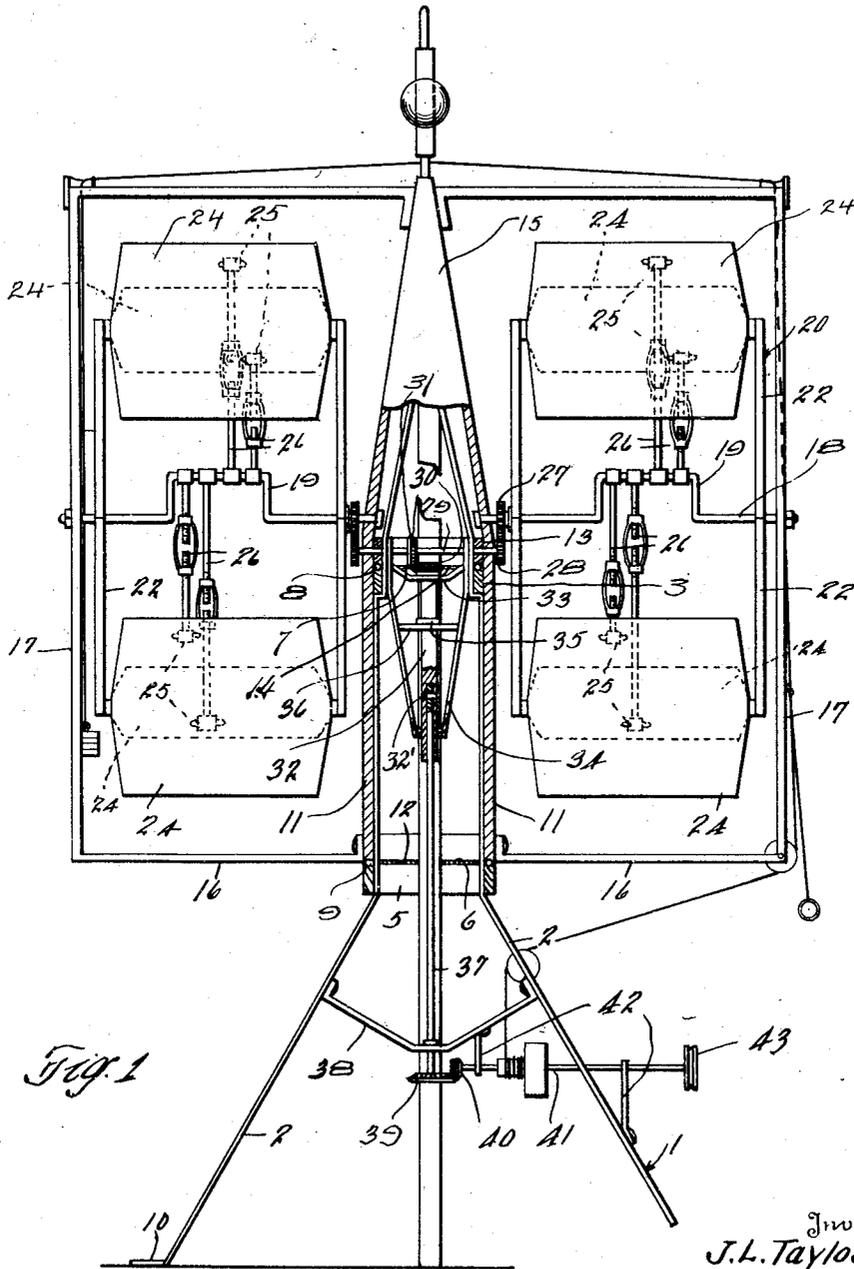


Fig. 1

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Witnesses

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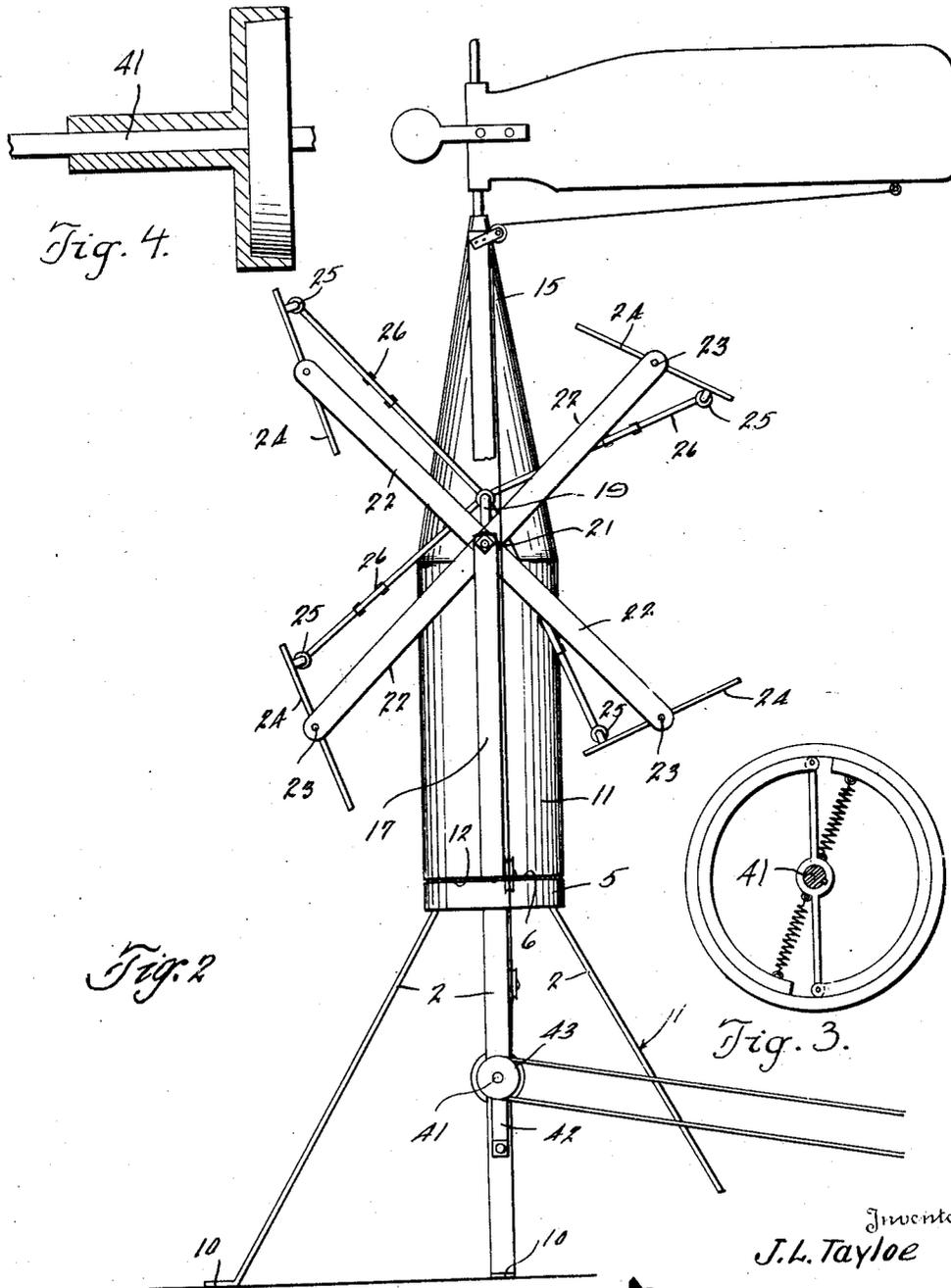
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UNITED STATES PATENT OFFICE.

JAMES L. TAYLOE, OF OWENSVILLE, MISSOURI.

WINDMILL.

1,265,137.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JAMES L. TAYLOE, a citizen of the United States, residing at Owensville, in the county of Gasconade and State of Missouri, have invented certain new and useful Improvements in Windmills; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to new and useful improvements in windmills, and the principal object of the invention resides in the provision of a device for utilizing the power of wind to operate various mechanical devices.

Another object of the invention is to provide an improved type of windmill having feathering vanes which present a maximum surface to the wind when it is desired to have the power thereon and which when turned are arranged to present edges to the wind so as to avoid any back pressure and interference in the operation of the device.

A further object of the invention is to provide a vane by which the device is held in proper position to get the full force of the wind and which when so desired may be turned so as to render the device inoperative.

A still further object of the invention is to provide a light running windmill provided with suitable antifraction bearings at all running parts in order to overcome as much friction as possible thus producing a maximum power.

With these and other objects in view, the invention consists in the novel combination and arrangement of parts which will be fully set forth in the following specification and accompanying drawings, in which:

Figure 1 is a side elevation of a windmill constructed in accordance with this invention,

Fig. 2 is a front elevation partly in section of the windmill,

Fig. 3 is an enlarged end view of the feed control clutch used in connection with this device; and

Fig. 4 is a sectional view through the clutch showing the clutch shoes.

Referring to the drawings, 1 designates

as an entirety the base of the device consisting of a plurality of strips of strap iron 2, the upper ends of which extend in spaced parallel relation as shown in the drawings and these parallel portions carry at their upper terminals a suitable ring 3. The lower ends of the parallel portions are surrounded by a ring 5 having formed at its upper edge a suitable annular groove 6 forming a ball race. The upper edge of the ring 3 is provided with an annular groove 7 forming a ball race in which suitable bearing balls 8 run, while similar bearing balls 9 run in the ball race 6. The straps 2 extend downwardly and are provided at their ends with suitable feet 10 which form a support for the device as clearly shown in the drawings. Fitted over the ring 3 and extending downwardly beside the parallel portions of the straps 2 is a cylindrical body 11, the lower edge of which is provided with an annular groove 12 which is adapted to rest on the bearing balls 9, while a ring 13 having an annular groove 14 in its under side is attached within the cylinder 11 and runs on the bearing balls 8. In this way it will be seen that the sleeve will readily turn with relation to the standard or base as desired. Formed at the upper terminal of the cylinder 11 is a frusto-conical hood or cap 15, the upper end of which is apertured and arranged in axial alinement with the longitudinal axis of the cylinder. Attached to cylinder adjacent its lower end is a pair of arms 16, the outer ends of which extend upwardly to provide standards 17, the upper ends of which are apertured to receive a stationary crank rod 18 forming shafts on which the rotating elements are mounted. Each of the shafts 18 is provided centrally with a crank 19 and the ends of each of said shafts opposite that which is secured in the standard 17 is in turn secured in the cap 15 near its base. The arms 16 are spaced from and secured to the cylinder at diametrically opposite points so that the rods 18 extend diametrically from each other thus forming substantially U-shaped frames in which the rotary elements are mounted.

The rotary elements hereinbefore referred to are designated generally by the numeral 20 and each of said elements comprises hub

members 21 having journaled on the rods 18 and extending vertically therefrom at right angles to each other suitable arms 22, the outer ends of which are apertured to receive the trunnions 23 of the blades 24. These blades 24 are provided on one side face with ears 25 to which are pivotally connected the connecting rods 26, the opposite ends of which are connected to the crank 19 of the crank rod or shaft 18. The innermost hub portion of rotary element 20 carries a gear 27 which meshes with a pinion 28 on the main drive shaft 29 of the device. This shaft is journaled in the upper end of the cylinder 11 and extends through said cylinder and is provided near its center with a beveled gear 30 which meshes with the beveled gear 31 mounted in a hollow shaft 32, the upper end of which is journaled in a U-shaped bearing bracket 33 while the lower end is journaled in a substantially V-shaped bearing bracket 34. A thrust collar 35 is formed on said shaft intermediate its ends and engages a cross bar 36 which is arranged between the upper and lower terminals of the bracket 34. Slidably mounted in the lower terminal of the shaft 32 is a shaft 37 which is journaled in a suitable bracket 38 arranged between the supporting legs 2. The shaft 37 is held against rotating in the shaft 32 by means of a pin 32' extending transversely through the shaft 32 and shaft 37, holding the same connected thereto for rotation therewith. A gear wheel 39 is attached to the lower end of the shaft 37 and meshes with a pinion 40 which is mounted on the inner end of the shaft 41 which in turn is mounted in suitable brackets 42 and carries at its outer end a drive pulley 43.

It will thus be seen that as the rotary elements 20 are turned power will be transmitted to the drive pulley 43 through the structure previously described.

It will be understood that a suitable vane is attached to the upper end of the conical cap in order to insure the proper positioning of the device with relation to the wind as will be clearly seen upon reference to the drawings.

While in the foregoing there has been shown and described the preferred embodiment of this invention, it is to be understood that such changes may be made in the combination and arrangement of parts as will fall within the spirit and scope of the appended claims.

What is claimed is:

1. In a device of the class described, a standard, a sleeve rotatably mounted on the upper end of the standard, a frame secured to the sleeve and extending laterally therefrom at diametrically opposite points, a pair of rotary elements journaled in the frame,

blades carried on said rotary elements, said blades adapted to feather as the elements rotate, and means supporting said elements in a horizontal axis on the sleeve.

2. In a device of the class described, a standard, a sleeve rotatably mounted on the upper end of the standard, frames secured to the sleeve at diametrically opposite points and extending laterally therefrom, a pair of rotary elements journaled in the frames, blades carried on said rotary elements, said blades adapted to feather as the elements rotate, said frames supporting said elements in a horizontal axis on the sleeve, and a vane attached to the upper end of the sleeve for holding the device in the wind.

3. A device of the class described comprising a standard, a sleeve rotatably mounted on said standard, a pair of rotary elements journaled on the sleeve at diametrically opposite points and extending horizontally therefrom, blades carried on said rotary elements, said blades adapted to feather as the elements rotate, frames secured to said sleeve and journaled to the rotary elements for supporting the elements in a horizontal axis on the sleeve, and an anti-friction bearing between the sleeve and said standard to cause said sleeve to freely rotate with relation thereto.

4. In a device of the class described, a standard, a frusto-conical sleeve rotatably mounted on said sleeve, a pair of rotary elements secured to the sleeve at diametrically opposite points and extending horizontally therefrom, blades carried on said rotary elements, said blades adapted to feather as the elements rotate, frames secured to the sleeve and rotary elements for supporting the elements in a horizontal axis on the sleeve, and an anti-friction bearing between the sleeve and standard to allow said sleeve to freely rotate with relation thereto, and a vane attached to the upper end of the sleeve whereby the sleeve may be rotated when any variation in the direction of the wind occurs, said vane assuring the proper position of the device with relation to the wind.

5. In a windmill, a plurality of straps extending upwardly in spaced parallel relation, a ring connecting the lowermost ends of the straps, a ring connecting the upper ends of the straps, said rings being provided with annular grooves in the upper surfaces to form ball races, the rings and straps forming a standard, bearing balls within said ball races, a hollow cylindrical element adapted to fit upon the standard, the lower edge element being provided with an annular groove forming the ball races to engage the lowermost bearing balls, the ring between the upper end of the cylindrical element having a groove and this upper edge

forming ball races to receive the upper side
of bearing balls, a vane to cause the cylindrical
element to rotate on the standard
when any variation in the direction of the
5 wind occurs, crank shafts extending outwardly
from the cylindrical element at diametrically
opposite points, rotors formed on said crank
shafts, said rotors being provided with radiating
arms, blades rotatably
10 mounted between the ends of said arms and

connecting the rods and connected to the
blades when near their edges and to the
crank shaft, whereby upon rotation of the
rotors the blades will be feathered.

In testimony whereof I affix my signature 15
in presence of two witnesses.

JAMES L. TAYLOE.

Witnesses:

C. L. CAWLEY,
ELMER STEINBECK.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."