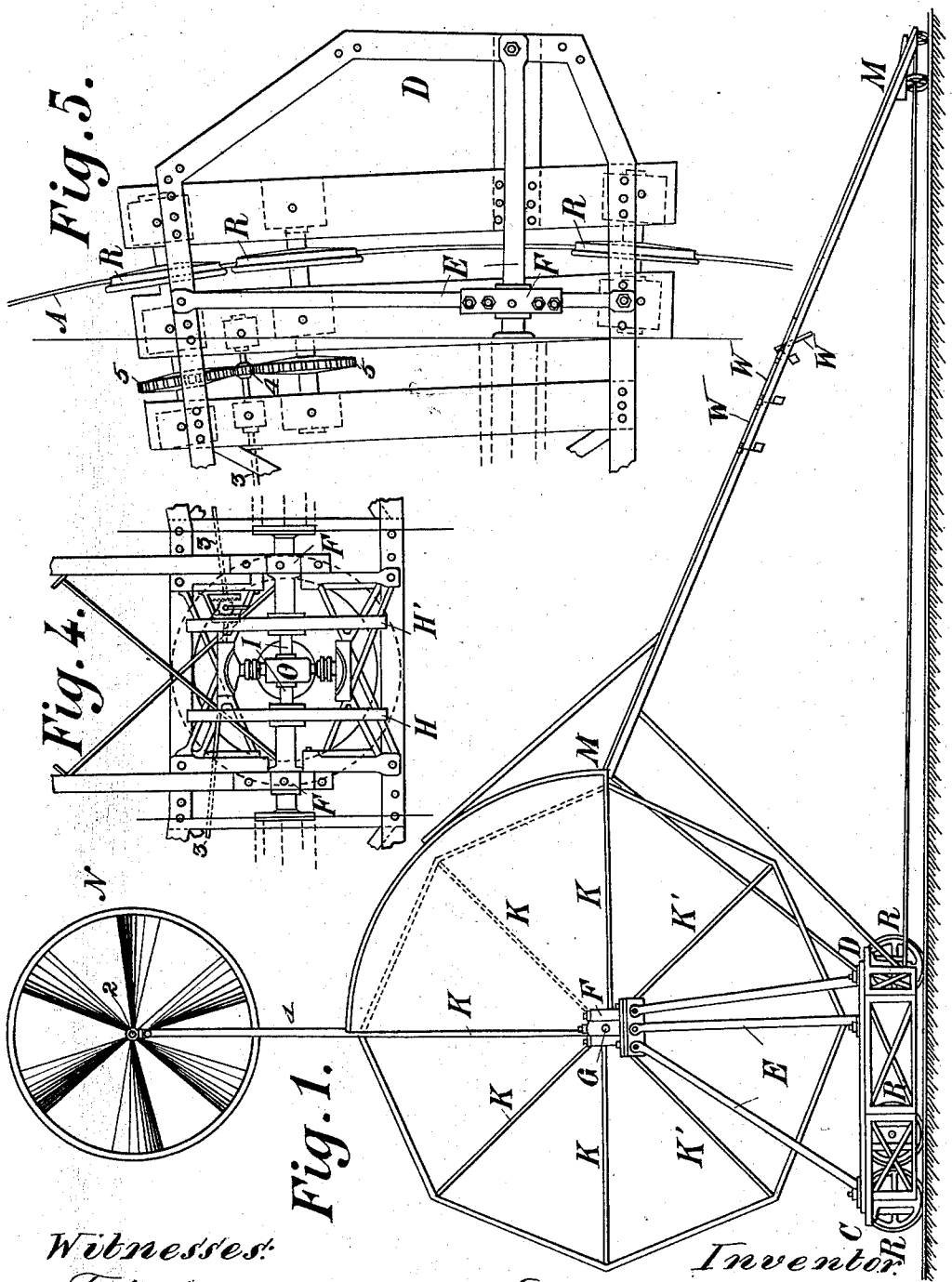
No. 717,939. PATENTED JAN. 6, 1903.

# LUIS SORIA Y HERNANDEZ.

## WIND MOTOR.

APPLICATION FILED JULY 25, 1902.

NO MODEL. 2 SHEETS—SHEET 1.




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Fig. 6.

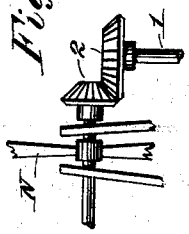





Fig. 2.

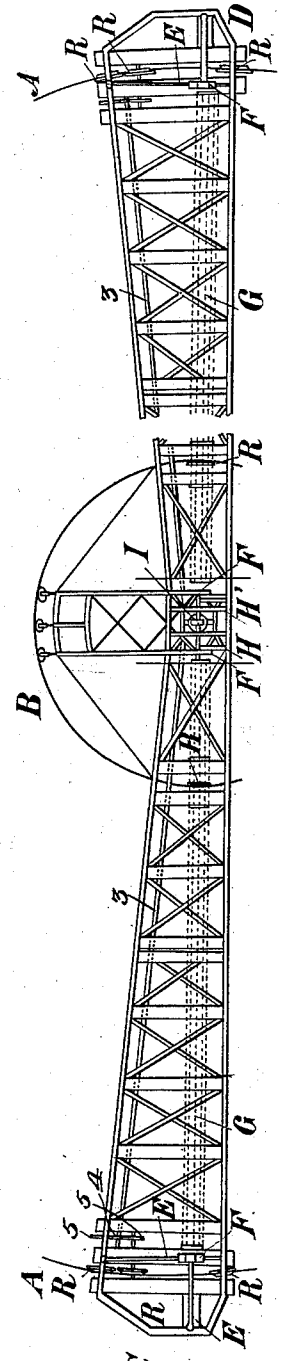



Fig. 3.

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# UNITED STATES PATENT OFFICE.

LUIS SORIA Y HERNANDEZ, OF MADRID, SPAIN.

## WIND-MOTOR.

SPECIFICATION forming part of Letters Patent No. 717,939, dated January 6, 1903.

Application filed July 25, 1902. Serial No. 116,931. (No model.)

*To all whom it may concern:*

Be it known that I, LUIS SORIA Y HERNANDEZ, a subject of the King of Spain, residing at Madrid, Spain, have invented certain new and useful Improvements in Wind-Motors, of which the following is a specification.

This invention relates to the class of windmills, and has for its object the utilization of the wind for obtaining power, especially on a large scale, for compressing air, generating electricity, running mills, and the like, and in general for the utilization of the wind wherever power is required.

The species of windmills to which the invention particularly appertains is that wherein the radial blades of the wheel are on a horizontal shaft and an inclined shield is employed to screen the lower part of the wheel and direct the air-current upward to the blades above the axis and wherein the wheel is mounted on a carriage which turns in a horizontal plane, being shifted by some automatic means, so as always to face in the direction of the wind.

In the accompanying drawings, which illustrate an embodiment of the invention, Figure 1 is a side elevation of the motor. Fig. 2 is a front elevation of the same, but on a scale one-half that of Fig. 1. Fig. 3 is a plan on the same scale as Fig. 2, but omitting the wind-wheels and other elevated parts. Figs. 4, 5, and 6 are detailed views on a larger scale, which will be hereinafter described.

A B designate circular tracks concentrically disposed in a horizontal plane. There may be any desired or necessary number of these tracks, and they may be laid on the ground or on any suitable elevated structure. Preferably they will be of metal; but the particular material employed is not essential to this invention. On these tracks is mounted a carriage constructed in the form of two like arms or wings C D, strongly framed, of metal, wood, or any suitable material. This carriage has wheels R to run on the circular tracks. The carriage C D is capable of revolving about the center of the circular tracks. Fig. 4 is a plan view of the center of the carriage, and Fig. 5 is a plan view of the end D of the carriage, showing the details of construction. At the respective ends and center of the carriage C D are supports E for bearings F, in which are rotatively mounted two alined shafts G, the inner ends of which are furnished with crank-disks H H, connected by a wrist-pin I. To this pin is coupled a rod J. The shafts G have radially-disposed blades K, mounted on suitable radial arms L, of relatively great length. These blades or radial wings, of which there may be eight, as shown in Fig. 1, will be preferably formed of frames covered with some suitable sheet material, as cotton, which forms a covering impermeable to wind.

M is an inclined plane nearly or quite as long as the wind-wheel and of any convenient width. This inclined plane is mounted on the carriage and has its lower edge near the ground and its higher edge at about the level of the shafts G; but it is so placed as to permit the polygonal wind-wheel to rotate without touching it. The plane M, which forms a shield, may be made from any sheet material, and this material may be, if desired, in the form of pivoted slats, so that they can be turned to free them from snow. Three of these may be seen in Fig. 1, where they are indicated by W. This construction will be readily understood without the necessity of detailed description or illustration.

Mounted on a suitable support on the carriage at its center and disposed above the level of the polygonal wind-wheels is a small wind-wheel N. This wheel has its axis parallel with that of the polygonal main wind-wheels, and therefore does not rotate when the wind comes from a direction at right angles to the axis of the main wind-wheels and over the inclined plane M; but if the wind changes its direction—say to a direction parallel to the axis of the shafts G—the wheel N will rotate and turn the carriage about through the medium of suitable intermediate gearing. (Seen in Figs. 4, 5, and 6.) This gearing comprises the following features, as herein shown: The small wind-wheel, which has oblique blades and rotates with a wind impinging on its face, drives an upright shaft 1 through the medium of bevel gears 2. (Seen best in Fig. 6.) Through suitable gears the shaft 1 drives shafts 3, which extend out to the respective ends of the carriage. On

each shaft 3, at its outer end, is a pinion 4, (see Fig. 5,) which gears with spur-wheels 5 on the axles of the track-wheels R.

The purpose of the small wind-wheel N is to bring the apparatus up properly to the wind and to turn it to the proper position when the wind changes. This proper position is with the axis of the shafts G at right angles to the direction the wind is blowing. When in this position with the inclined shield M directed to windward, the wind will impinge upon the upper blades K of the main wind-wheels and rotate the shafts G, the shield permitting the lower blades to move in the direction of the wind without material resistance.

The rotation of the shafts G is communicated to the cross-head O of the connecting-rod J, imparting to it a reciprocating movement. Power may be taken from the cross-head J for any purpose desired.

It will be noted that the shafts G are substantially a single shaft with a crank in the center and that the two main wind-wheels are practically one wheel with a part removed at the center. The power is taken off at the center for convenience of transmission, as the center of the carriage A B does not travel. To provide a broader lateral base at the center, the carriage may have a lateral wing *a*, (seen in Fig. 3,) extending out to the inner track B and having wheels to roll thereon.

I am aware that it is not new, broadly, to mount a wind-wheel on a horizontal axis on a carriage which turns in a horizontal plane, to screen the lower part of the radial blades of the wheel by means of an inclined shield which turns with the carriage, and to provide means for automatically holding the wheel to face the wind. These features I do not claim broadly.

Having thus described my invention, I claim—

A wind-motor comprising two concentric tracks in a substantially horizontal plane, a carriage having wheels which run on said tracks, a shaft mounted horizontally on said carriage and provided with radial blades to form motor wind-wheels, an inclined shield which screens the lower half of said motor-wheels and is provided with wheels which travel on the outer track, and means for keeping the wind-wheels properly presented to the wind, said means comprising an auxiliary wind-wheel N mounted on the carriage, an upright shaft 1 driven thereby, horizontal shafts 3, extending out laterally on the carriage and driven by the shaft 1, pinions on the outer ends of the respective shafts 3 and gearing with spur-wheels 5 on the axles of the track-wheels of the carriage, and the said spur-wheels, substantially as set forth.

In witness whereof I have hereunto signed my name, this 8th day of July, 1902, in the presence of two subscribing witnesses.

LUIS SORIA Y HERNANDEZ.

Witnesses:

DEAN R. WOOD,

ELADIO PAURATA.