

No. 764,759.

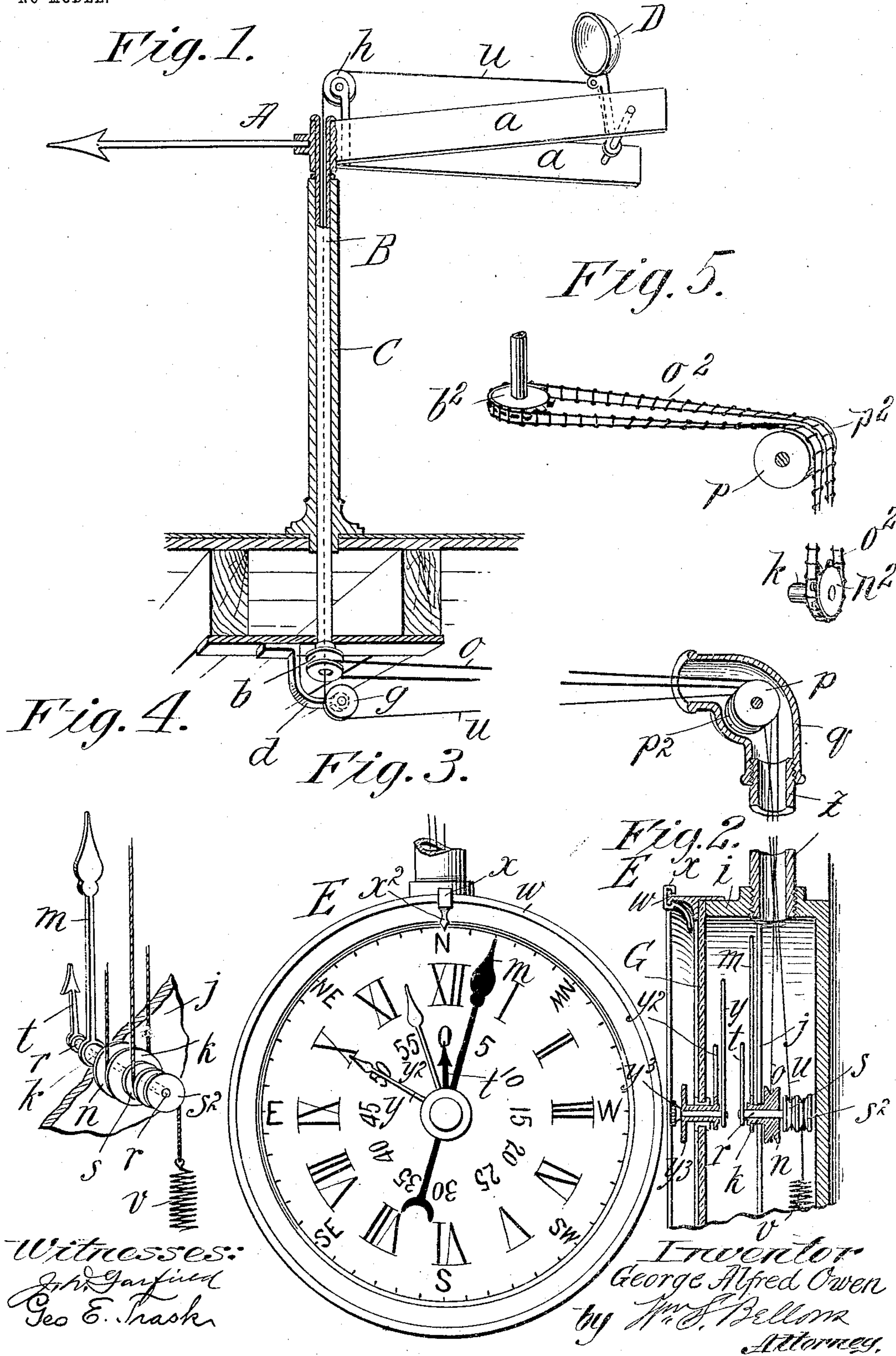
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G. A. OWEN.

WIND DIRECTION AND WIND VELOCITY INDICATING APPARATUS.

APPLICATION FILED AUG. 21, 1903.

NO MODEL.



UNITED STATES PATENT OFFICE.

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WIND-DIRECTION AND WIND-VELOCITY INDICATING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 764,759, dated July 12, 1904.

Application filed August 21, 1903. Serial No. 170,292. (No model.)

To all whom it may concern:

Be it known that I, GEORGE ALFRED OWEN, a citizen of the United States of America, and a resident of Springfield, in the county of Hampden and State of Massachusetts, have invented certain new and useful Improvements in Wind-Direction and Wind-Velocity Indicating Apparatus, of which the following is a full, clear, and exact description.

This invention relates to an apparatus for indicating the direction and velocity of the wind and also to non-automatic means combined therein for making an indication or record of the direction of the wind to be referred to at a time subsequent to the making of such indication.

The object of the invention is to provide means at the top of a building subject to the wind-currents and affected thereby both in respect of direction and velocity operatively controlling index-pointers movable over the face of a dial understood as located in any convenient and conspicuous place within the building, said dial having wind-direction and wind-velocity characters with which the pointers variably register and with regard to simplicity in organization and reliability in action.

The invention consists in the construction and arrangements of parts, all substantially as hereinafter fully described, and set forth in the claims.

In the drawings, Figures 1 and 2 together show in vertical section the exteriorly and interiorly located parts of the apparatus and the operating connections between the former and the latter. Fig. 3 is a face view of the interiorly-located indicator. Fig. 4 is a perspective view in detail of parts shown in the sectional view, Fig. 2. Fig. 5 is a perspective representation of equivalent driving connections to those shown in Fig. 1.

Similar characters of reference denote corresponding parts in all of the views.

In the drawings, A represents the weather-vane and in suitable and approved form, the same being secured at the upper end of a shaft B, fitting a rotatable within a tubular post C, mounted on the top of the building. Pivotal-ly mounted on and between the divergent

members *a a* of the weather-vane is a cup-shaped wind-baffle member D.

A sheave *b* is affixed at the lower end of the weather-vane shaft B within the building, said sheave being rotatably in unison with the shaft in a horizontal plane and mounted on a bracket *d* within the building, and adjacent the sheave *b* is another sheave, *g*, rotatable in a vertical plane and having its rim about tangential with the axis of the shaft B, and a guide-sheave *h* is also supported by the weather-vane for rotation in a vertical plane above the open end of the tubular shaft and with its rim located about tangential to the axis of the shaft.

E represents the indicator, the same being understood as located at any suitable and conspicuous place within the building, having a wall *j* therein, the front of which constitutes a dial, as seen in Fig. 3, having thereon the wind-direction characters "N.," "E.," "S.," and "W.," and intermediate wind-direction-indicating characters and marks, as desired, and also on the face of the dial in circular arrangement are wind-velocity figures, as seen, running from "0" to "55." The wall forming the dial serves as a journal and support for the axially-arranged shaft *k*, having at its forward end the long index or pointer *m* to register with the wind-direction characters and having at its rear end the sheave *n*.

A cord or other form of light endless driving-band *o* has a running engagement around the sheave *b* on the weather-vane and around the said sheave *n* in the indicator-casing, the same being intermediately guided for changing the direction of the courses of the driving-band from the horizontal to the vertical around the guiding-sheave *p*, located within an angular hollow fitting *q*, understood as being provided at or near the roof of the building and downwardly open therethrough.

The aforementioned shaft or arbor *k* for the pointer *m* and the shaft *n* form as one therewith are axially bored to give bearing therethrough for the short shaft *r*, which has at its rear end the double sheaves *s s'* and by its forward end the wind-velocity pointer *t*, which is arranged to register with the circularly-arranged wind-velocity characters.

Attached to the wind-baffle member D is a cord u , having a running engagement around sheave h , centrally down through the tubular weather-vane shaft, thence around the guiding-shaft g , thence horizontally under the roof of the building to and around a guiding-sheave p p^2 adjacent to the aforementioned sheave p , and thence to an operating engagement with the sheave s , all whereby the amount of movement which the more or less rapidly-blowing and correspondingly-strong wind imparts to the member D will cause a registration thereof by the pointer t on the wind-velocity figures on the front of the dial.

In order that the wind-baffle member may be restored to its normal position upon the decrease in the wind force and the pointer t , also a spring v has an engagement for reaction on the sheave s s^2 , which is understood as affixed the same as sheave s on the shaft r .

The indicator-casing is provided with a glass front G, and the casing has the surrender-flange w , on which movably engaged is a clip or yoke x , having an inwardly-extending index-pointer x x^2 .

Time-indicating characters are provided at the front of the indicator either on the dial behind the glass or directly on the glass front.

Hands y y^2 , like the minute and hour hands of a clock, are arranged on a sleeve or shaft, one fitting through the other and both centrally arranged through a bushing in the center of the glass front, the hands being disposed on the inner ends of their respective shaft, the outer ends of which have handle-knobs y^3 y^3 , whereby the hands may be turned from the outside to indicate any given time. It is therefore possible for a person upon noting the direction of the wind at a given time to slide the index-yoke x so that the pointer registers with the wind-direction character corresponding thereto and setting the time-indication hands in relation to the Roman characters to designate the time of such wind condition. This may be habitually done, for instance, at twelve o'clock of each day, so that at any subsequent time on an inspection of the indicator it may be known what was the direction of the wind at such given time.

The operating-cords o and u may have the courses thereof between the different sets and sheaves with which they coact inclosed within tubular casings, as partially indicated at z in Fig. 2.

The cup-shaped member D, which receives the wind impact by being mounted on and bodily movable with the weather-vane, besides having its individual independent movement, is by the vane always carried to a position of obstruction squarely against the direction in which the wind may be blowing.

In Fig. 5 in place of "plain sheaves" and "driving-cords" sprocket-wheels b^2 and sprocket-chain o^2 of light construction are indicated.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In an apparatus of the character described, the combination with an axially-mounted weather-vane, and a wind-baffle member pivotally mounted on said vane, of a dial bearing wind-direction and wind-velocity characters, separate pointers cooperating respectively with said characters, and independent flexible connections between said vane and baffle member and their respective pointers.

2. In an apparatus of the character described, the combination with an axially-rotatable weather-vane and a baffle member pivoted on said vane, of a dial bearing wind-direction and wind-velocity characters, separate pointers cooperating respectively with said characters, concentric shafts on which said pointers are mounted, a pulley on each pointer-shaft, and independent flexible connections between said vane and baffle member and their respective pointers.

3. In an apparatus of the character described, the combination with a weather-vane carrying a pivotally-mounted wind-baffle member, of a dial bearing suitable wind-velocity characters, a pointer cooperating with said characters to indicate the velocity of the wind, a rotary shaft on which said pointer is mounted, a pulley on said shaft, a flexible connection between said baffle member and said pulley, and a resistance-spring acting on said pulley to restore the baffle member and pointer to normal position upon a decrease in the wind force.

4. In an apparatus of the character described, the combination with an axially-rotatable weather-vane and a wind-baffle member pivotally mounted thereon, of a dial bearing suitable wind-direction and wind-velocity characters, separate pointers cooperating respectively with said characters, independent shafts on which said pointers are mounted, a pulley on each pointer-shaft, independent flexible connections between said vane and baffle member and their respective pulleys, and a resistance-spring acting on the pulley of the wind-velocity pointer for the purpose specified.

5. The combination with a weather-vane in a wind-direction and wind-velocity indicating device and a vertical rotatable shaft tubular therefor having at its lower end a sheave, of an indicator having wind-direction and wind-velocity characters thereon, and comprising a tubular shaft with a wind-direction pointer and a sheave and driving-band in running engagement around said sheaves, a wind-baffle member pivotally mounted for a swinging movement, subject to wind forces, on the vane, sheaves h and g adjacent to the top and bottom of the tubular weather-vane shaft, a shaft v journaled through the tubular wind-direction pointer-shaft, and having a wind-velocity

pointer and a sheave *s* and a flexible connection secured to the wind-baffle member, in guiding engagement around the sheave *h* through tubular vane-shaft, around sheave *g* and to operative connection with shaft *s*, the sheave *s*² and spring *v* applied as shown and constituting a resistance and retracting for the actuating device for the velocity-indicator.

6. In a device of the character described, the combination with a vane and wind-baffle member mounted thereon, and also movable independently thereof, of an indicator comprising wind-direction, wind-velocity, and time-indicating characters, and wind-direction and wind-velocity pointers, operating connections between the vane and the baffle member and said pointers, and means for manually placing them in registry with the time-indicating characters, and a manually-operable pointer adapted to be set in registry with the characters designating the character of the wind.

7. The combination with a weather-vane, a

baffle member movably mounted thereon, a dial having wind-direction and wind-velocity characters, a wind-direction pointer, a wind-velocity pointer, a flexible connection between said vane and said wind-direction pointer, and a flexible connection between said baffle member and said wind-velocity pointer.

8. The combination with a weather-vane, a baffle member movably mounted on said vane, a dial having wind-direction characters and wind-velocity characters, a wind-direction pointer operated by said vane, a wind-velocity pointer operatively connected to said baffle member, and manually-operated means combined with said dial for permanently indicating the time and the direction of the wind.

Signed by me at Springfield, Massachusetts, in presence of two subscribing witnesses.

GEORGE ALFRED OWEN.

Witnesses:

WM. S. BELLOWS,
CHAS. F. SCHMELZ.