

(Model.)

A. THOMSON.
WIND ENGINE.

No. 252,912.

Patented Jan. 31, 1882.

Fig. 1.

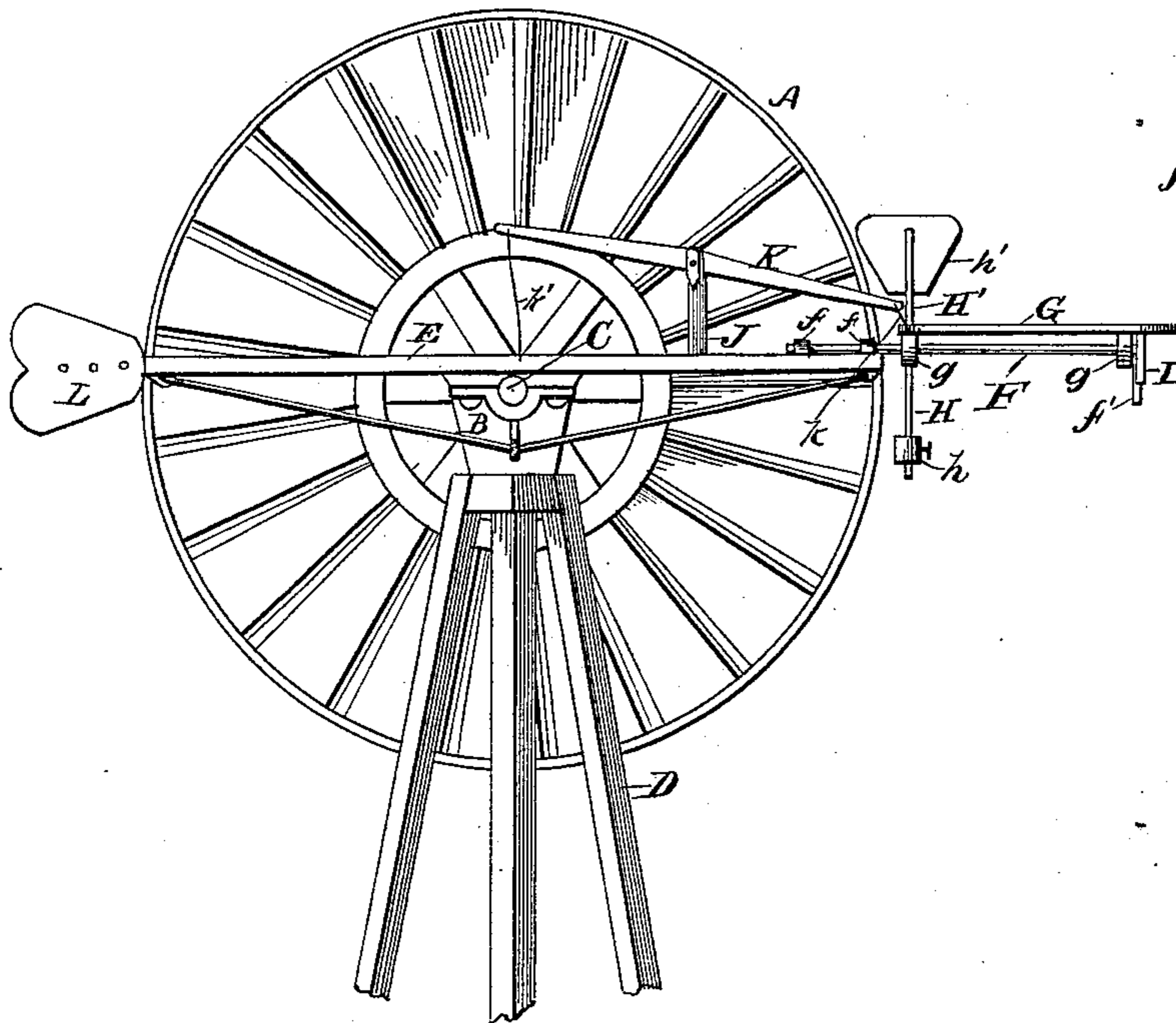


Fig. 2.

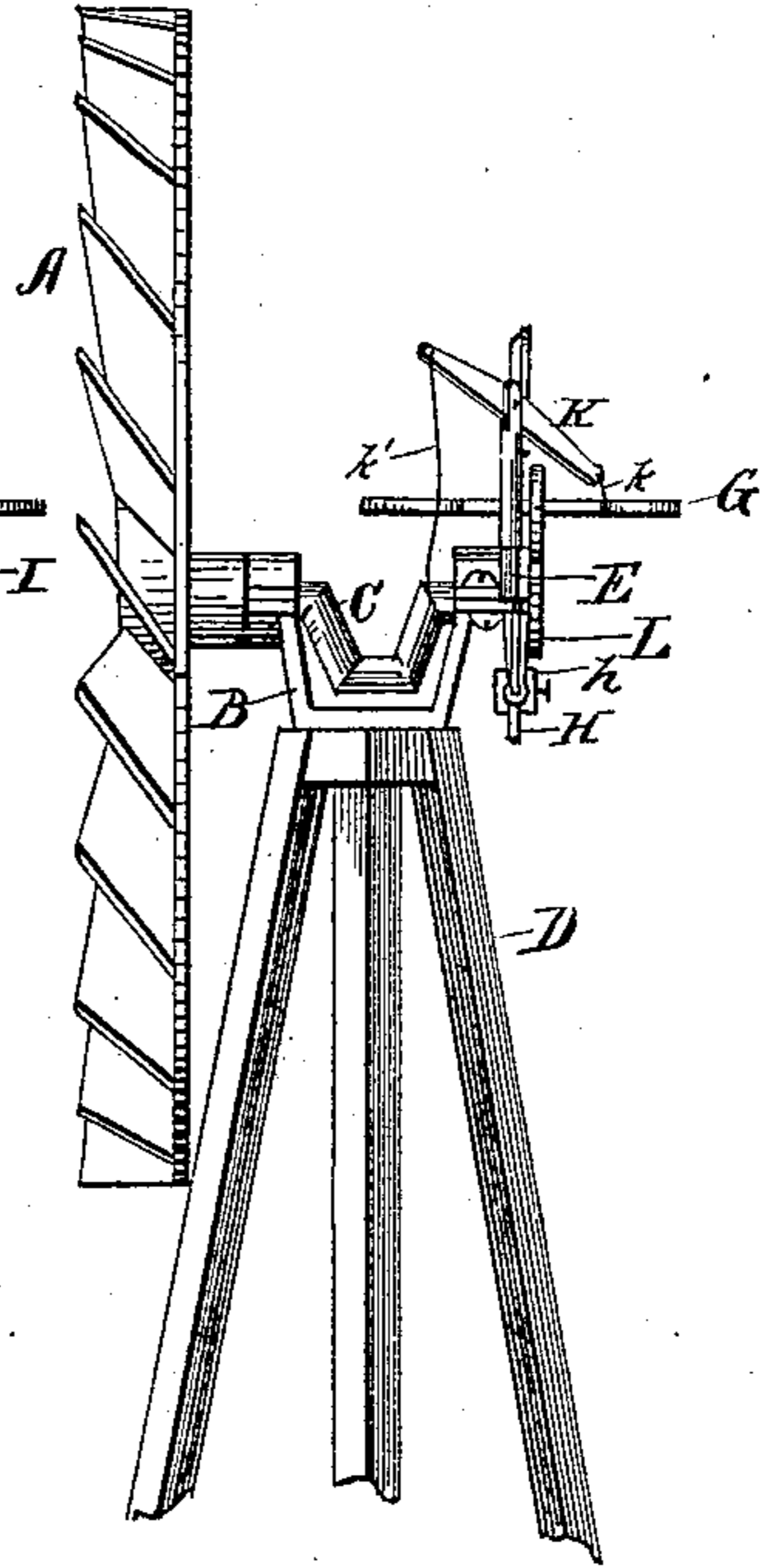


Fig. 3.

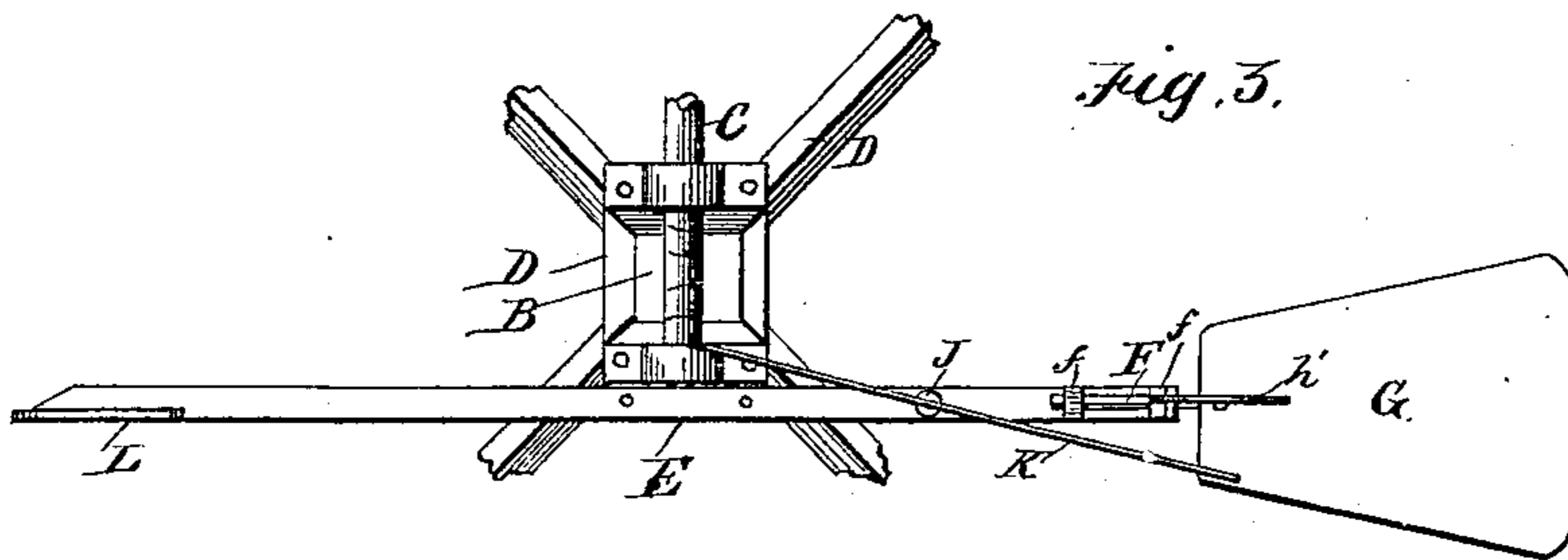


Fig. 4.

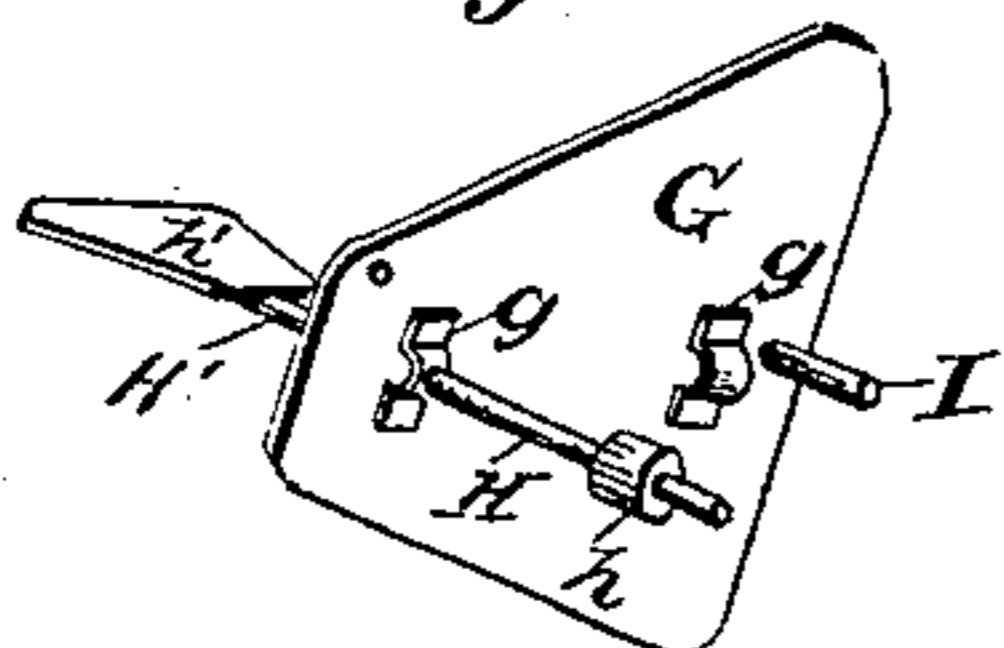
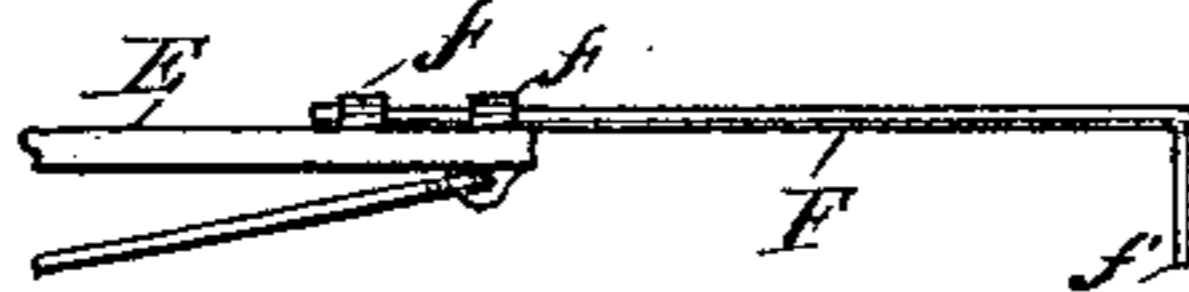


Fig. 5.



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ALEXANDER THOMSON, OF AMES, IOWA.

WIND-ENGINE.

SPECIFICATION forming part of Letters Patent No. 252,912, dated January 31, 1882.

Application filed January 24, 1881. (Model.)

To all whom it may concern:

Be it known that I, ALEXANDER THOMSON, a citizen of the Dominion of Canada, residing at Ames, in the county of Story and State of Iowa, have invented certain new and useful Improvements in Wind-Engines; 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, reference being had to the accompanying drawings, and to the letters or figures of reference marked thereon, which form a part of this specification.

Figure 1 is a front elevation of a wind-engine provided with my improved governor. Fig. 2 is a side elevation of the same. Fig. 3 is a top plan view of the parts comprising the governor. Fig. 4 is a perspective view of the main or governor vane, showing the attached mechanism for operating the same; and Fig. 5 is a view of the vane-carrying bar or arm.

Similar letters of reference denote like parts in the several drawings.

Considerable trouble and annoyance have been experienced by owners and users of wind-engines by the variable power exerted by such engines, such variable force or power being caused by the wind-wheel attached to such engines presenting at all times its entire front surface to the wind, irrespective of the force exerted by the wind at such time. Thus wind-engines unprovided with means by which the extent of surface of the wind-wheel may be regulated with regard to the force of the wind are, as a rule, unreliable and untrustworthy for the reason set forth above.

To remedy the above-named defect, and at the same time to provide a cheap, simple, and durable governor for wind-engines, has been the object of the present invention; and to this end it consists in a suitable main or governor vane attached by pivoted bearings to a bar extending from side to side across the shaft-bearing head of the wind-wheel, and secured thereto, and in the means employed to make such main or governor vane automatic in its movements, as hereinafter described.

It further consists in certain novel mechanism whereby the wind-wheel may be made to present more or less of its face to the wind, as

hereinafter set forth; and, finally, it consists in the construction and operation of the various parts as a whole, substantially as hereinafter set forth.

Referring to the drawings, A is a wind-wheel, B the revolving shaft-bearing head or turntable, C the shaft journaled in such head, and D the frame, all of which are constructed in the usual form of wind-engines as heretofore employed.

To one side of the head B, I secure a suitable trussed bar, E, the said bar extending horizontally in the same plane as the wind-wheel, and of length about equal to the diameter of said wheel.

To one end of the bar E, I secure a bar or arm, F, the said bar or arm F being secured to the trussed bar E by staples *f*, and extending outwardly to some distance from E, the outer end of the arm F terminating in a downwardly-projecting portion, *f'*, as shown.

G represents a vane pivoted by suitable bearings, *g*, to the arm F, the normal position of the said vane being the horizontal plane, as shown in Figs. 1 and 2. To insure said horizontal plane being normally retained by the vane G, I provide the latter at each of its faces with outwardly-projecting arms H H' at right angles to the planes of said faces. To the lower bar, H, I affix an adjustable weight, *h*. I provide the bar H' with a small vane, *h'*, the object of which vane *h'* will be hereinafter fully explained.

I represents a stop projecting from the under side of the vane G and operating, in conjunction with the stop *f'*, to limit the movement of the vane, as will be readily understood.

Upon the upper surface of the bar E, I provide an upwardly-projecting standard, J, to which I pivot a lever, K, the outer end of which lever is connected to the vane G by a cord or chain, *k*, while a cord, *k'*, extends to the ground from the opposite end of the lever, whereby the vane may be rotated, thus presenting greater or less extent of surface to the wind, as desired.

In order to balance the pressure of the wind against the ends of the bar E, I provide the end of the said bar opposite to the vane G with a small tail-vane, L.

The operation of my improved governor is

as follows: The vane G being in horizontal position normally, will so remain until the force or pressure of the wind against the face of the small vane h' tilts the vane G, thus presenting the full face of the latter (more or less) for a short time to the pressure of the wind, thereby causing (through bar E) the head B to revolve, and presenting the edge of the wheel to the force of the wind. The instant the wheel is turned the pressure of the wind is lessened on the vane G. The weight h causes the vane to resume its normal position. This operation automatically takes place whenever the force of the wind overbalances the weight h , by adjusting which it will be plainly seen the wheel may be supplied with any desired pressure of wind, thus maintaining a nearly uniform rate of speed.

It will be seen that the vane G, pivoted in loose bearings, as described, will revolve easily and with but little friction.

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

1. In a wind-engine, the trussed bar E, rigidly attached to the revolving head B, and provided with the main or governor vane G, pivoted to one end thereof, and small counter-balance-vane L, rigidly attached to the other end, substantially as described.

2. In a wind-engine, a main or governor vane, G, pivoted to the outwardly-extending arm F, and provided upon its under side with a projecting arm, H, and adjustable weight h , where-

by it retains normally a horizontal position, in combination with an upwardly-projecting arm, H', having a vane, h' , attached thereto, and operating to present the face of the vane G to the wind when the pressure upon the vane overbalances the adjustable weight, substantially as described.

3. In a wind-engine, the limiting-stop f' of the arm F, in combination with the stop I upon the under side of the vane G, whereby the latter is limited to a quarter-turn upon its axis, substantially as described.

4. In a wind-engine, the bar E, provided with the standard J, lever K, and cords or chains k and k' , whereby the vane G may be kept from the horizontal plane, and whereby it may be revolved, substantially as described.

5. In a wind-engine, the pivoted main vane G; provided with projecting arm H, having weight h , and arm H', having vane h' , in combination with the bar E and revolving head B, substantially as and for the purpose set forth.

6. The combination of the vane G, provided with projecting arms H and H', weight h , small vane h' , and stops I f' , and pivoted to the projecting arm F of the bar E, with the standard J, lever K, and cords $k k'$, substantially as described.

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

ALEXANDER THOMSON.

Witnesses:

M. J. CROSSMAN,

D. A. NEAL.