

(No Model.)

2 Sheets—Sheet 1.

M. IRRGANG.
WIND WHEEL.

No. 469,786.

Patented Mar. 1, 1892.

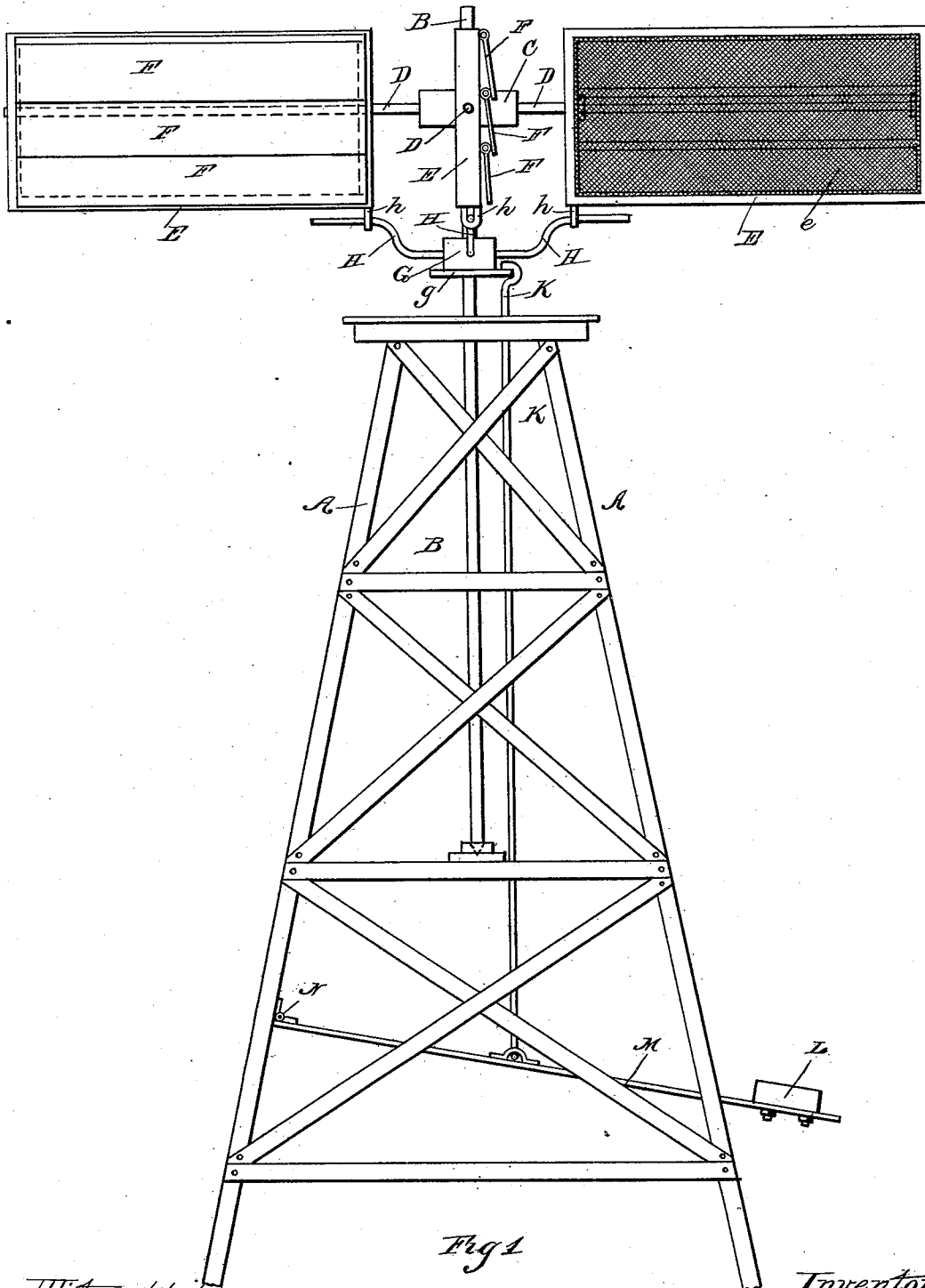


Fig 1

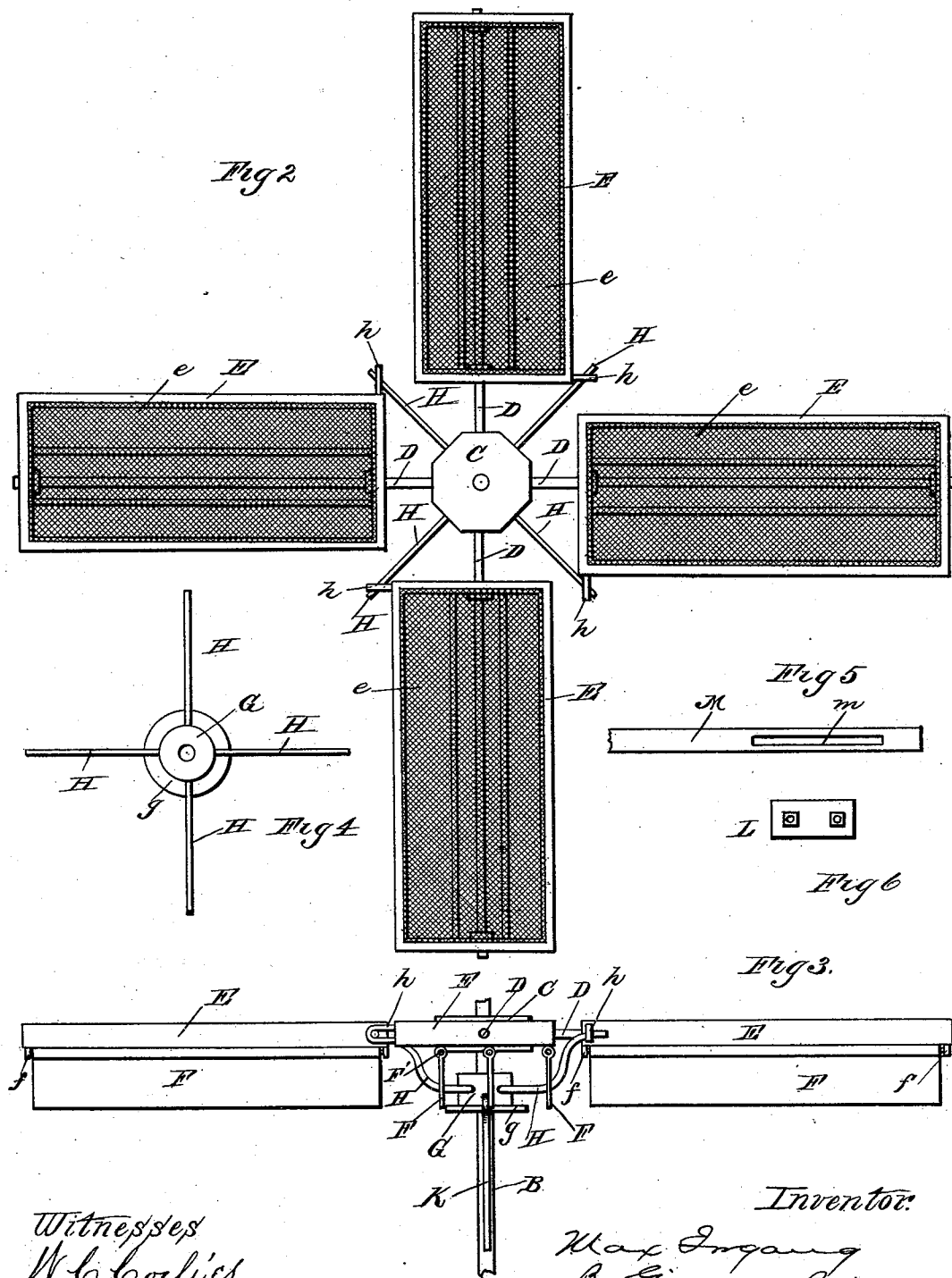
Witnesses.
W. C. Corlies
J. L. Tinsman.

Inventor.
Max Irrgang
By Ellison Benjamin
his Attorneys.

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UNITED STATES PATENT OFFICE.

MAX IRRGANG, OF BOWMANVILLE, ILLINOIS.

WIND-WHEEL.

SPECIFICATION forming part of Letters Patent No. 469,786, dated March 1, 1892.

Application filed May 11, 1891. Serial No. 392,258. (No model.)

To all whom it may concern:

Be it known that I, MAX IRRGANG, a citizen of Germany, residing at Bowmanville, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Wind-Wheels; and I do 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 of reference marked thereon, which form a part of this specification.

My invention relates to that class of wind-wheels in which the sails move in a horizontal plane; and it consists of the various novel parts and arrangements of parts hereinafter set forth.

In the accompanying drawings, Figure 1 is an elevation of my improved wind-wheel. Fig. 2 is a plan view of the sails when out of wind. Fig. 3 is an elevation of the sails when in same position as in Fig. 2. Figs. 4, 5, and 6 are details.

The frame or standard A is of any desired form and carries a vertical shaft B, upon which may be mounted any desired form of power-transmission mechanism. The shaft B projects above the standard A and carries near its upper end a block C, rigidly attached to the shaft. Radiating arms D are fixed in the block C, and upon these arms are located sail-frames E, which are intended to maintain a vertical position when in operation, but which are mounted loosely upon the arms D, so that they may turn to a horizontal position, as shown in Fig. 2.

The sail-frames E are provided with longitudinal sails or slats F F. The sails F are preferably of sail-cloth, but may be of any light material, and are hung upon rods F', which are pivotally secured to the frames E at each end by the eyes or sockets f.

The sails F are attached to one side or face of the frames E, and upon the other side thereof is placed a wire fabric e for the purpose of preventing the sails from blowing through the frame. If the sails are not flexible, the wire fabric may be replaced by stop-rods.

A second block G is loosely carried upon the shaft B below the block C. Radiating

arms H are fixed in the block G and correspond in number to the sail-frames E. The arms H are curved upwardly and again downwardly, their outer ends projecting through sockets or eyes h, which depend upon the inner ends of the sail-frames E. The lower end of the block G is provided with a radial flange g, over which is hooked the upper end of a connecting-rod K, which extends downwardly and is pivotally attached to a cross-lever, as M, one end of which is pivoted to the standard A, as shown at N, and the other end of which carries a weight, as L, the said weight being secured to the lever by means of bolts passing through the slot m, which are provided with suitable nuts.

In operation, the sail-frame having its front side—that is, the side upon which is attached the sails F—presented to the wind presents a solid pressure-surface, while the opposite sail-frame, having its rearward face to the wind, presents no pressure-surface, as the wind blows freely between the sails F. It will be seen that the direction of the wind is entirely immaterial. The sails upon one side are always in action and upon the others are always out of action. The radial arms D pass through the frames E above their longitudinal median lines, so that the wind-pressure constantly tends to turn the sails upon their shafts. This tendency is overcome by the weight, L acting upon the block G, which in turn holds the sail-frames by the action of the arms H upon the eyelets h.

Should the wind be stronger than is necessary to do the desired amount of work, the sails are turned upon their shafts and the weight is raised, it having been previously adjusted with reference to the amount of work to be accomplished. The wind-wheel is, therefore, self regulating or governing. This feature is of special advantage in the event of violent storms, which would have a tendency to damage the machine, as in that case the sail-frames are turned to a horizontal position, as shown at Fig. 2, and the sails F flap loosely in either direction.

The sail-frames may be of any desired number. I do not wish to be limited to four, as shown in the drawings.

I claim—

1. In a wind-wheel, the combination, with

a vertical shaft and with arms radiating therefrom, of sail-frames horizontally pivoted upon such radiating arms, their pivotal lines being at one side of their central lines, whereby
5 they are adapted to normally assume a vertical position and with sails swinging from supports in the sail-frames parallel to the radiating arms, and stop devices for limiting the movement of the sails to one side of the
10 sail-frames, substantially as described.

2. In a wind-wheel, the combination, with a frame or standard and a vertical shaft having radiating arms, of normally-vertical sail-frames loosely mounted on horizontal pivots
15 upon said arms, the lines of their support being above their median lines, sails car-

ried longitudinally by the frames, the lines of their support being upon their upper edges, a rigid stop upon one side of the sails, a sliding block G on the vertical shaft, rotary radiating arms fixed in said block and pivotally
20 secured to the sail-frames, a swinging lever attached to the standard, a weight adjustably carried by the lever, and a rod connecting the lever and the block G, substantially as
25 described.

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

MAX IRRGANG.

Witnesses:

HENRY VERSEMA,
JOHN C. WEBER.