

(No Model.)

2 Sheets—Sheet 1.

C. O. WEIDMAN.
WIND WHEEL.

No. 512,777.

Patented Jan. 16, 1894.

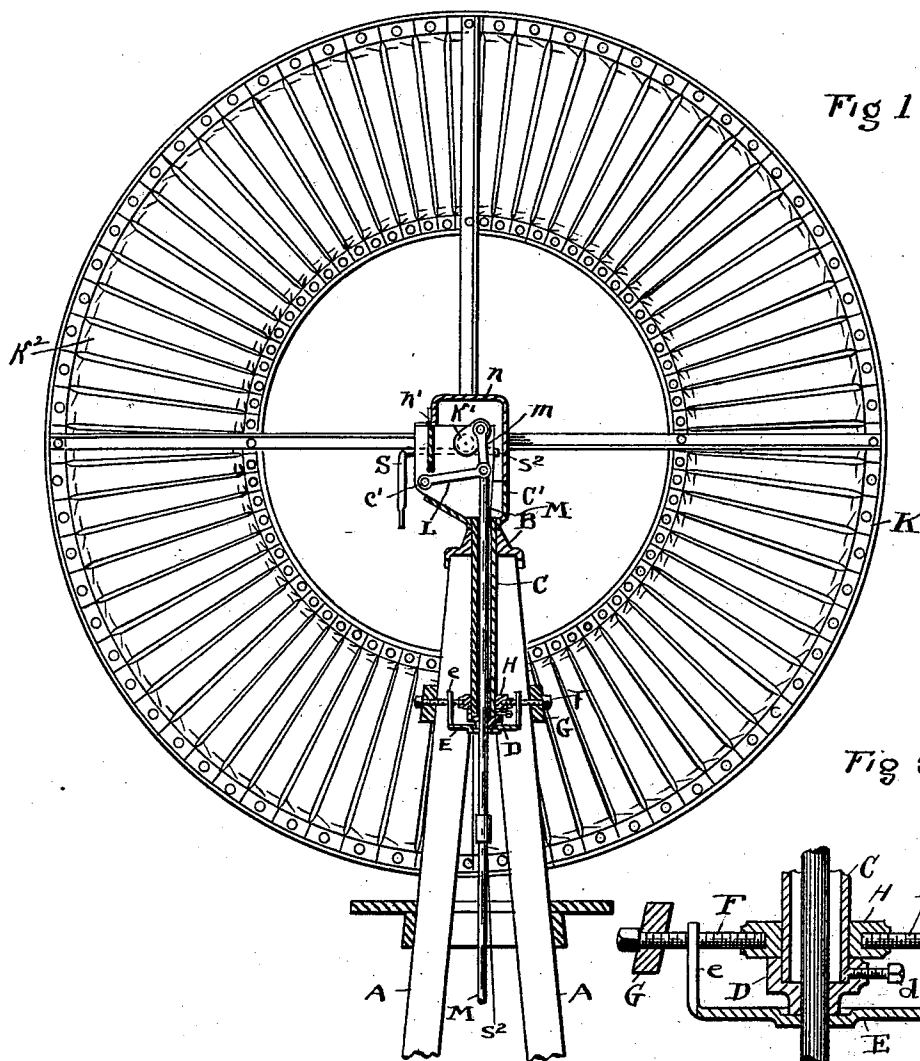


Fig 1

Fig 5

Fig 6

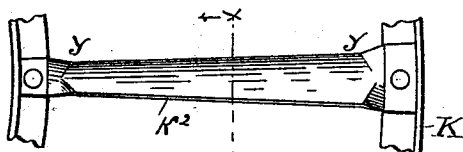


Fig 7.

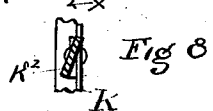


Fig 8.

ATTEST.

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Eva Latham

INVENTOR.

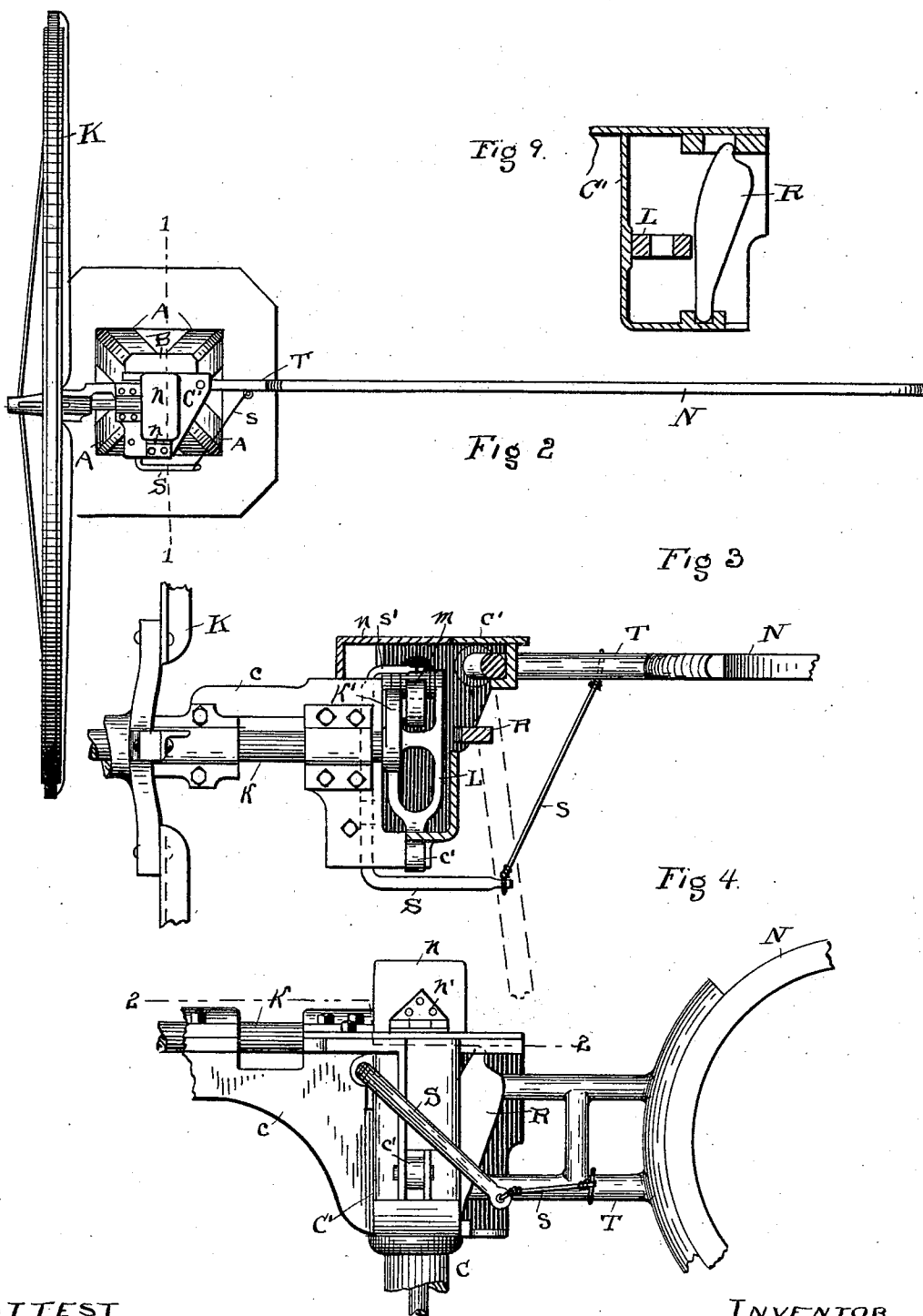
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UNITED STATES PATENT OFFICE.

CHARLES O. WEIDMAN, OF MEDINA, OHIO.

WIND-WHEEL.

SPECIFICATION forming part of Letters Patent No. 512,777, dated January 16, 1894.

Application filed November 7, 1892. Serial No. 451,247. (No model.)

To all whom it may concern:

Be it known that I, CHARLES O. WEIDMAN, a citizen of the United States, residing at Medina, in the county of Medina and State of Ohio, have invented certain new and useful Improvements in Wind-Wheels; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to wind wheels, and is an improvement on the wheel patented to me February 10, 1891, No. 446,307. The present construction is designed to simplify the construction shown in said patent and to improve the operation of the wheel, all substantially as herein shown and described and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a vertical central section of my improved construction, taken on line 1, 1, Fig. 2, and Fig. 2 is a plan view. Fig. 3 is a horizontal cross-section substantially on line 2, 2, Fig. 4, looking down. Fig. 5 is an enlarged vertical central section of the mechanism associated with the step which supports the hollow vertical spindle, as hereinafter described. Fig. 6 is a side view of one of the blades detached from the wheel with a section of the rim affixed thereto at each end, and Fig. 7 is an edge view of the blade and a cross-section of the rim at its ends, and designed to show the angle of the blade in respect to the rim. Fig. 8 is a cross-section on line *x, x*, Figs. 6 and 7, which likewise show the angle of inclination of the blade to its end attachment, and shows as well that the blade is flat and straight between its ends. Fig. 9 is a detail in section of the spindle head and of the brake mechanism therein, and showing especially how the part R is supported.

The frame-work of the structure may be of any suitable pattern or kind, but in this instance is shown as having, among other parts, four converging posts, A, surmounted at their tops and held together by a cap B, open through its center for the passage of the depending spindle C. The said cap B has several flanges overlapping the ends of the posts A and fastened thereto in any suitable way so as to firmly connect said parts together. The said

spindle is hollow throughout its length and is supported above in said cap B, and at its lower end rests in a cup D, which has a set screw, *d*, by which the cup and spindle are firmly held together and adapted to rotate together. The said cup has a reduced bearing portion at its bottom which rests upon the step E. This step has ears, *e*, through which it is supported by threaded bolts, F, upon its four sides, which said bolts pass through the cross bars, G, secured across the outside of the frame A on its four sides and serving to hold the said frame together near its top, and in this respect contributing to the support which is afforded by the surmounting cap B. A collar, H, surrounds the hollow spindle, C, immediately above the cup D, and the said bolts, F, enter the said collar and are held thereby, and these afford all the necessary support laterally to the said spindle and its associated parts, as well as affording a vertical support therefor, as herein described.

The hollow spindle, C, has integrally therewith a box-shaped head, C', in which or by which practically all the operating mechanism of the device is supported. Thus the wheel, K, is supported thereon by the brackets *c* extending laterally from one side of said head, and the spindle *k* of the said wheel is horizontally supported in said bracket and has the usual crank *k'* at its inner end, to which is attached the pitman, *m*, and the pump rod, M, is pivotally hung upon this pitman and extends down through the hollow spindle C, and the cup, D, and the step, E, as plainly shown in Figs. 1 and 5. A pivoted check link or yoke, L, is connected at one end in the joint which connects the said pitman and the pump rod and at its rear end in the rear of the head, C', as clearly seen in Figs. 1 and 3. A suitable box cover, *n*, hinged at *n'* protects the mechanism within the box from exposure from the elements. The weather or wind vane, N, has a vertical axis, as usual, in the head, C', the said axis being inclined to a vertical plane so that the said vane will normally hold a position at right angles to the wheel, K. Now, it is desirable at times, as is well known, to have a brake applied to the wheel, and to accomplish this braking in a simple and effective way, I have introduced a vertically

arranged brake plate or shoe, R. The arrangement of this shoe, or braking device, and its operation may be clearly seen in Fig. 9. It will be observed that the said device is set in a socket at its lower end and is free to play back and forth within limits in the slot which supports its upper end, and is so arranged and placed that normally it will be out of braking contact. But when the weather vane is drawn around to one side for the purpose of braking the parts, the frame of the said vane bears against the said part R, as seen in dotted lines in Fig. 3, where the said vane and frame are drawn around, and this causes the brake R, to bear against the link or yoke, L, and thereby brake the mechanism as desired. In order that the said weather vane may be thus drawn around to one side as indicated in said dotted lines, Fig. 3, I employ a crank rod, S, bent to the desired shape and having one arm thereof secured by a suitable link chain or the like, s, to the frame, T, of the weather vane, while the other crank arm, s' has a cord or its equivalent, s², attached thereto, of a sufficient length to reach down to the ground where the operator may take hold of the same. In this way more or less braking may be accomplished as may be desired, and when the brake mechanism is released the weather vane swings back by gravity to its normal position.

Another feature of novelty in my improved wheel, is the construction of the vanes or blades, K², as seen in Figs. 6 to 8. These blades are shaped substantially as shown in the several figures, and are straight and flat between the portions marked y, y, in said figures. Then, in order that they may set in the wheel at the desired angle and serve the purpose for which they are intended, I twist the ends thereof reversely, as shown, and sufficiently to give them about the angle of inclination between the points y, y, as shown. This enables me to get all the clearance between the said blades or vanes that is necessary, and, at the same time, gives me a wheel which, when viewed upon its edge, is exceedingly narrow. Indeed, a full-sized wheel need not be over an inch deep in cross-section, and yet by this construction will do the most effective work.

What I claim as new, and desire to secure by Letters Patent, is—

1. The wind wheel having a crank axle, the

pump rod and the pitman connecting said axle and rod and a pivoted check link to limit the joint movement of said parts, in combination with a brake to bear against said check link, the weather vane frame and a crank rod linked at one end to said frame to draw the same around and cause it to bear against the said brake, substantially as described.

2. The construction herein described consisting in the crank shaft of the wind wheel, the pump rod M, the pitman m and the check link L, in combination with the slightly inclined brake piece R arranged to bear against said link, L, substantially as described.

3. In wind wheels, a wheel constructed substantially as described and having a series of blades formed with slightly twisted ends and straight flat bodies, substantially as described.

4. The wheel herein described having blades of sheet metal that are straight and flat between their ends and having their ends twisted into a plane at an angle to the body of the blade, substantially as described.

5. The blades herein described for wind wheels, the same being formed of sheet metal and straight and flat between their ends; and having their extremities twisted at an inclination to the flat sides of the body of the blade and into a common plane, substantially as described.

6. In wind wheels, a wheel having two rims of different diameters, and a series of sheet metal blades straight and flat between their ends and fixed to said rims; and the ends of the blades and the bodies thereof occupying different planes to the plane of rotation of the wheel, substantially as set forth.

7. In a wind wheel, the main frame, the vertical spindle therein having a box-shaped head, the crank axle of the wind wheel, the pump rod, the short pitman connecting said axle and said rod, the check link pivoted to said pitman and pump rod at one end and to the box-shaped head at the other end, and a brake to bear against said link, said parts arranged within said spindle head, substantially as set forth.

Witness my hand to the foregoing specification this 20th day of October, 1892.

CHARLES O. WEIDMAN.

Witnesses:

C. O. McDOWELL,

C. A. STEINHOFF.