(No Model.)

S. M. HOPKINS.

WINDMILL.

No. 484,795. Patented Oct. 25, 1892.

Fig. 1.

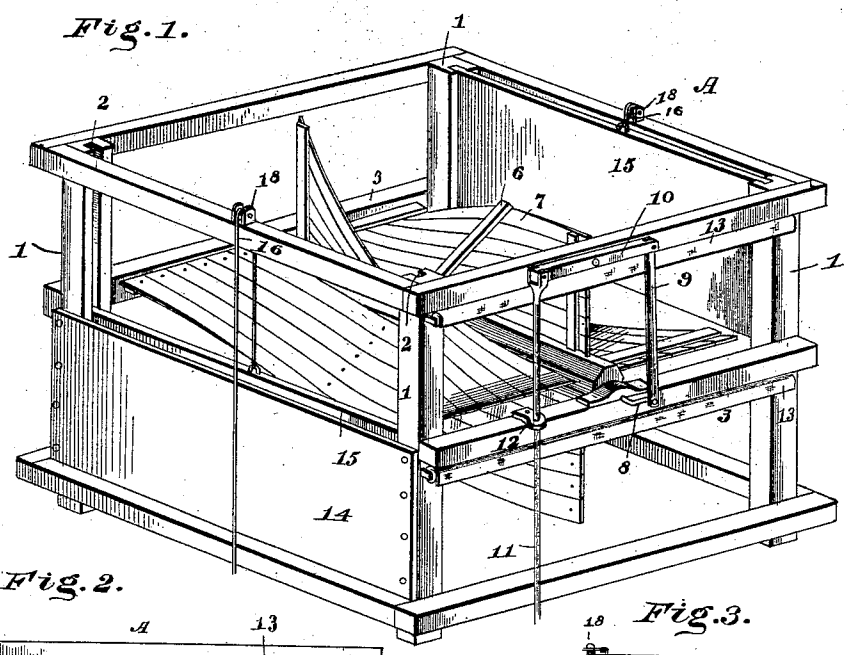


Fig. 2.

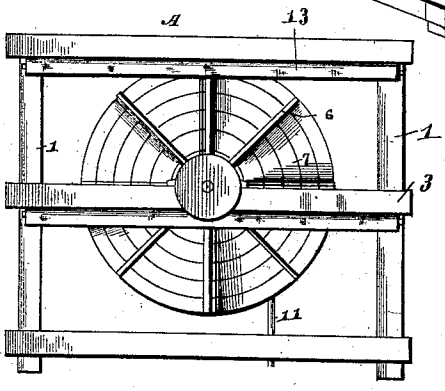


Fig. 3.

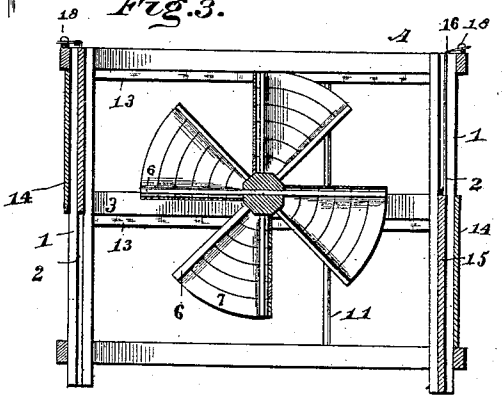


Fig. 4.

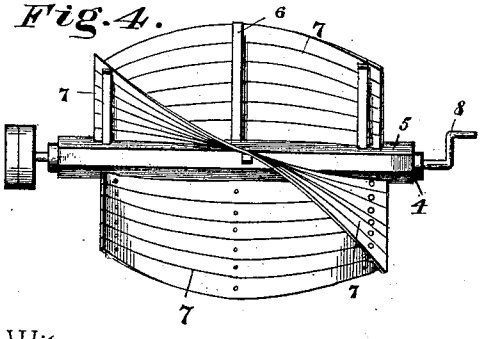
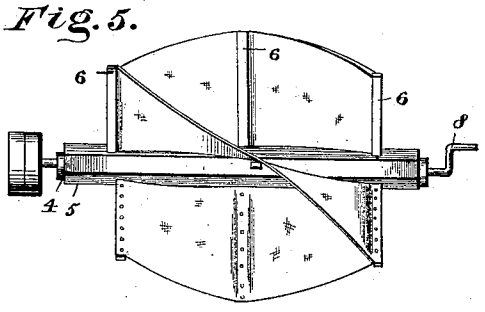


Fig. 5.



Witnesses
J. Ulke Jr.
Chas. S. Hyer.

Inventor
S. M. Hopkins.

By his Attorneys,
C. A. Snow & Co.

UNITED STATES PATENT OFFICE.

SAMUEL M. HOPKINS, OF FRANKFORT, KANSAS.

WINDMILL.

SPECIFICATION forming part of Letters Patent No. 484,795, dated October 25, 1892.

Application filed March 26, 1892. Serial No. 426,546. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL M. HOPKINS, a citizen of the United States, residing at Frankfort, in the county of Marshall and State of Kansas, have invented a new and useful Windmill, of which the following is a specification.

This invention relates to windmills; and it consists of a construction and arrangement of the parts thereof, as will be more fully hereinafter described and claimed.

This invention has special reference to that class of windmills which are located close to the ground in contradistinction to those elevated to considerable height.

The object of this invention is to provide means whereby the wind may be directed through the wheel from all points and shut off therefrom in whole or part, as may be found desirable and necessary, the parts being simple and effective in their construction and arrangement and easily handled and understood.

In the drawings, Figure 1 is a perspective view of a portion of a windmill embodying my invention. Fig. 2 is an end elevation thereof. Fig. 3 is a transverse vertical section of the same. Fig. 4 is a detail plan view of the wheel removed. Fig. 5 is a similar view of a modified form of the wheel.

Referring to the drawings, A designates the frame, having corner-posts or uprights 1, provided with grooves 2 in the opposing edges thereof. On one side of the said frame are secured cross-beams 3, in which the wheel-shaft 4 is journaled. On said wheel-shaft is secured a hub 5, having a series of plain faces, from which braces or spokes radially project in spiral form and each series thereof being arranged at angles to the adjacent series. These braces or spokes 6 are securely fastened in position and receive slats 7, bent in compound curve form and secured to said braces or spokes by suitable means. The peripheral edges of the blades of the wheel, as formed by these braces or spokes and the slats thereon, are in lines parallel with each other and assume the form of a screw after the manner of a propeller. By using slats to form the said blades and arranging them longitudinally, as shown, they may be more readily made to conform to the desired curvature; but, as shown in Fig. 5, a textile fabric—such as canvas—may be substituted for said strips or slats with equal efficacy. The one end of the shaft 5 projects beyond the frame and has a fast and loose pulley connected therewith, said fast and loose pulley being of preferred form and adapted to be engaged by a belt which may be shifted from one to the other and used to transmit power within an adjacently-located building or elsewhere, as may be desired. The opposite end of said shaft 5 is also projected beyond the frame and formed into a crank 8, to which is attached a pitman 9, having its opposite end connected to a walking-beam 10, pivotally secured to the frame and having the plunger-rod 11 of a pump connected to its opposite end, the said plunger-rod moving freely through a guide 12, secured to the adjacent cross-beam 3.

The ends of the frame having the cross-beams 3 thereon may be provided, as shown, with canvas curtains or closures of other nature, such as devices 13, which may be rolled up when desired to admit air to the ends of the wheel or to close the same and protect it from the action of the air or weather. The sides of the said frame are boarded up, as at 14, about half their height and arranged alternately below and above, as shown, with slides or shutters 15 inside thereof mounted in the grooves 2 of the corner-posts 1, and having cords, chains, or ropes 16, secured to cleats or loops attached to the centers thereof and passing through pulleys or other guides 18, secured to the central portion of the top of said side to thereby provide means for raising and lowering said shutters to admit the air to or shut it off from the said wheel. By having one of said shutters controlling a lower opening and the opposite shutter an upper opening the current of air passing into the frame and striking the wheel may be employed to better advantage and with more power by causing the same to exit from an opening lower than the ingress-point thereof. By this means the air acts upon the wheel for a longer period, as will be readily understood.

Instead of the shutters and boarding, as hereinbefore set forth, the canvas covering may be employed in connection with these

portions of the frame and be arranged to produce the same operation on the wheel as that just set forth when the said shutters are used.

By the form of wheel hereinbefore set forth the air may be taken in at the eye thereof from the ends of the frame and travel longitudinally or parallel with the hub of said wheel, and at the same time produce an impact on the blades which will cause a revolution and operation of the wheel entire. Further, this advantage, in addition to the current of air coming through the open sides, as set forth, and striking the blades directly at right angles to their longitudinal extent, will cause a high rate of rotation and an accumulation of power. The preferred form of the construction, however, is that embodying the vertically-adjustable shutters, which can be more readily manipulated for the purposes hereinbefore set forth.

Having thus described the invention, what is claimed as new is—

In a windmill, the combination of a frame having open ends and reversely-situated openings in the opposite sides thereof and corner-posts with vertical grooves in the opposing sides thereof, an elongated spirally-bladed wheel extending from end to end of said frame and having a crank in connection with one end thereof, cross-beams at the ends of said frame, arranged at bottom and top and intermediately, curtains carried by said beams and arranged in pairs, shutters adjustably mounted in connection with said grooved corner-posts and adapted to be operated to open and close said side openings, a walking-beam secured to one of said beams, a pitman connected to the crank of the wheel and to one end of the said walking-beam, and a plunger-rod connected to the opposite end of said walking-beam, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

SAMUEL M. HOPKINS.

Witnesses:
W. J. CAPHAM,
J. C. BIRDSELL.