(Model.)

G. A. ROLAND & C. P. ADAMS.

WIND POWER.

No. 265,150. Patented Sept. 26, 1882.

Fig. 1.

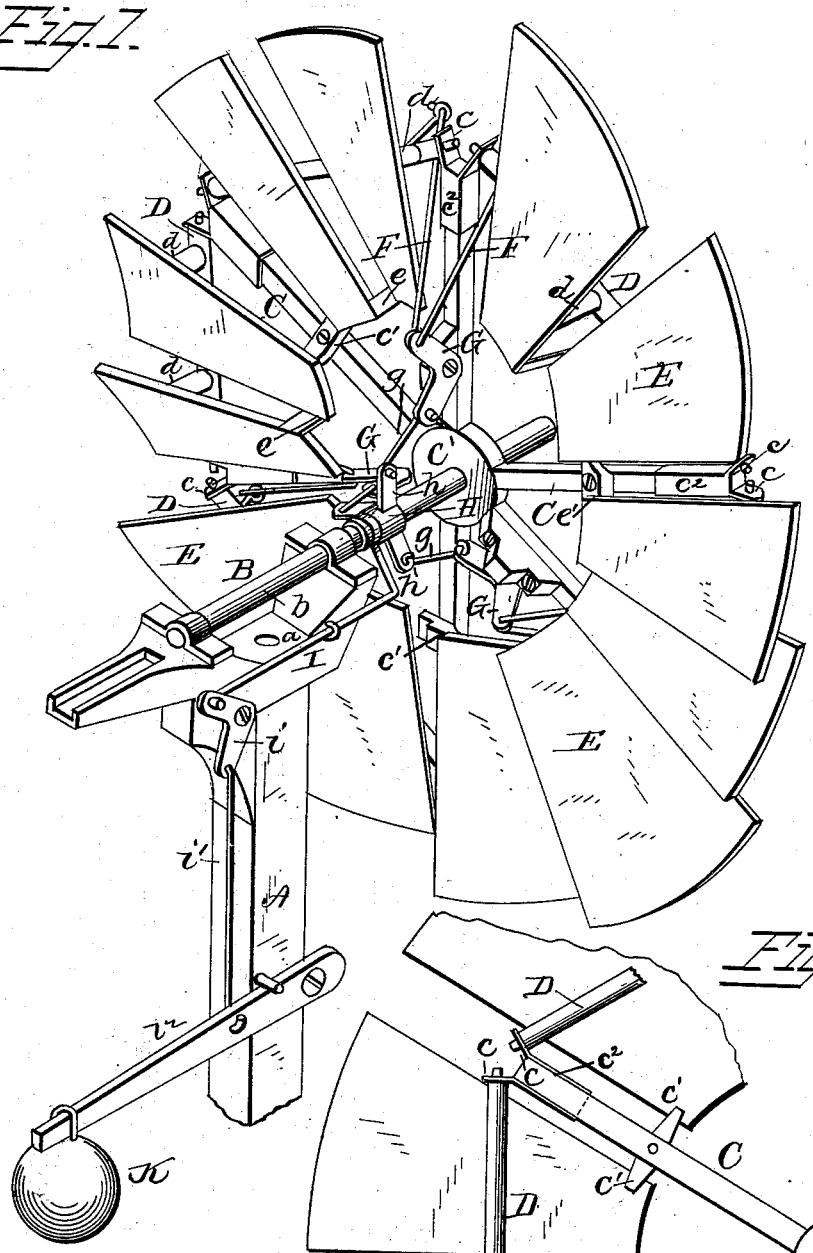
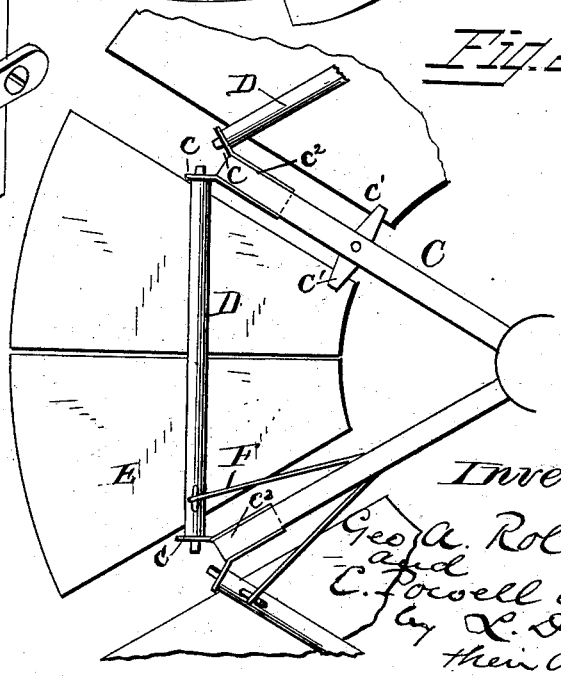


Fig. 2.



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UNITED STATES PATENT OFFICE.

GEORGE A. ROLAND, OF WASECA, AND C. POWELL ADAMS, OF HASTINGS, MINNESOTA.

WIND-POWER.

SPECIFICATION forming part of Letters Patent No. 265,150, dated September 26, 1882.

Application filed June 15, 1882. (Model.)

To all whom it may concern:

Be it known that we, GEORGE A. ROLAND and C. POWELL ADAMS, citizens of the United States, said ROLAND residing at Waseca, in the county of Waseca, and said ADAMS residing at Hastings, in the county of Dakota, and State of Minnesota, have invented certain new and useful Improvements in Wind-Powers; and we 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 letters or figures of reference marked thereon, which form a part of this specification, in which—

Figure 1 is a perspective view of this wind-wheel; Fig. 2, a detail showing how the sails are attached to the frame and the immediate mechanism for operating the same.

This device belongs to that class of inventions known as "wind-wheels;" and the novelty consists more particularly in the detail of the construction and operation of the several parts, all as will now be more fully set out and explained, reference being had to the accompanying drawings, in which A denotes any suitable turn-table or support on which the wind-wheel is mounted by the journal or shaft B, placed in proper bearings. On the outer end of this journal is placed the hub C′ of the wheel-frame, whereby said wheel has its motion on said shaft. On the ends of the several arms of this frame is fixed the piece c^2, having on each side the upwardly extended and flaring bearings *c* for the rotating shafts D, to which the sails E are attached or secured in the following way or manner. Each sail is in shape preferably trapezoidal, the larger end pointing outward. On the edge, and about three-fifths of the way from the smaller or inner end, each sail is fixed to the shaft D. Its other side is tilted up somewhat, and secured to the post *d*, which is fixed on said shaft. Usually there are two sails on each shaft. By this method of attaching the sails to this shaft there is an inclination given to each sail from the one edge or side to the other. Thus by having the elevated edge of one sail adjoining the edge of the next, where it is fastened directly to the frame, a space is left between the edges of each sail, and the entire arrangement of the sails all round the wheel is made with a view to have these intervening spaces as uniform as possible.

Heretofore in wind-wheels, sometimes, to make each sail several very long and narrow pieces have been fixed to a revoluble shaft, which has been cut out at proper intervals to enable each piece to be inclined in relation to each other piece and to said shaft, and leave a space between each of said pieces. There are very many objections to this method, not only as to the details of trouble and expense in construction, but because the peculiar shape and size of these pieces are not adapted to catch the wind in an effective manner.

Our plan of using very large sails and the peculiar way we attach the same to the shaft obviate the above objections and give a sail that is sure to catch the wind. The shaft is not weakened by cutting out any of its material. Each pair of sails on one shaft may have their inner ends secured together by means of an angle-iron, *e*, at their lower and adjoining edges.

The shafts D can be actuated to throw the sails in or out of the wind by the levers F, which are hinged at one end to said shafts and at the other to the joint G, fixed on the arms C, near the hub of the wheel. These joints are connected at the other side by a link, *g*, with arm *h* of the spider H. This spider has motion in or out on the shaft B by means of crank-arm I, which is regulated by the weight K. This crank-arm has any suitable joints, *i*, connecting-rods i', and lever i^2 to convey the power from K to the wheel. The stops c' on the arm C will properly limit the inner movement of the sails. A pitman can be attached to the shaft in any usual manner, as at *b*, (and thence pass down through hole *a*,) or in any desired way.

The sails are of such construction and so peculiarly placed on the frame as to take all the wind at the very best angle or direction when it is desired to run the wheel, while when it is desired to have it rest the wheel can be almost absolutely thrown out of the wind. The weight K or any suitable counter-balance is used, as is customary in these devices. This wheel will work either with or without a vane.

Having thus described our invention, what

we consider new, and desire to secure by Letters Patent, is—

1. A wind-wheel made of a series of sections, each composed of the large trapezoidal sails E, each of which is fixed on one side directly to the shaft D, (said shaft capable of being revolved,) and at the other edge to the post *d* on said shaft, whereby the sails are inclined to each other, so as to allow a very broad exposure to the wind when the wheel is in operation, and a free circulation of the wind between the parts when the wheel is out of operation, all as shown and described.

2. In a wind-wheel, the shafts D, mounted in the flaring bearings *c* on the ends of the arms C, and having the large trapezoidal sails E attached thereto, as described, and combined with the levers F, joint G, link *g*, spider H, arm I, joint *i*, and counter-balance K, substantially as described.

3. In a wind-power, the wheel mounted on turn-table A by its shaft B, and having arms C, provided with the movable trapezoidal-shaped sails E, having their smaller ends toward the center of the wheel, and set at an incline or angle each in relation to the other, and adapted to be stopped in their inner movements at *c'*, all as shown and described.

4. A wind-wheel, each section of which is composed of two large trapezoidal sails, E, united at their inner ends by an angle-iron, *e*, and secured directly at one edge and by post *d* at the other on the shaft D, journaled at *c* on the ends of arms C of the wheel, substantially as shown and described.

In testimony whereof we affix our signatures in presence of two witnesses.

GEO. A. ROLAND.
C. POWELL ADAMS.

Witnesses:
E. DEAN,
NEIL CONNELY.