

(No Model.)

2 Sheets—Sheet 1.

F. EVISON.
WINDMILL.

No. 591,962.

Patented Oct. 19, 1897.

Fig: 2.

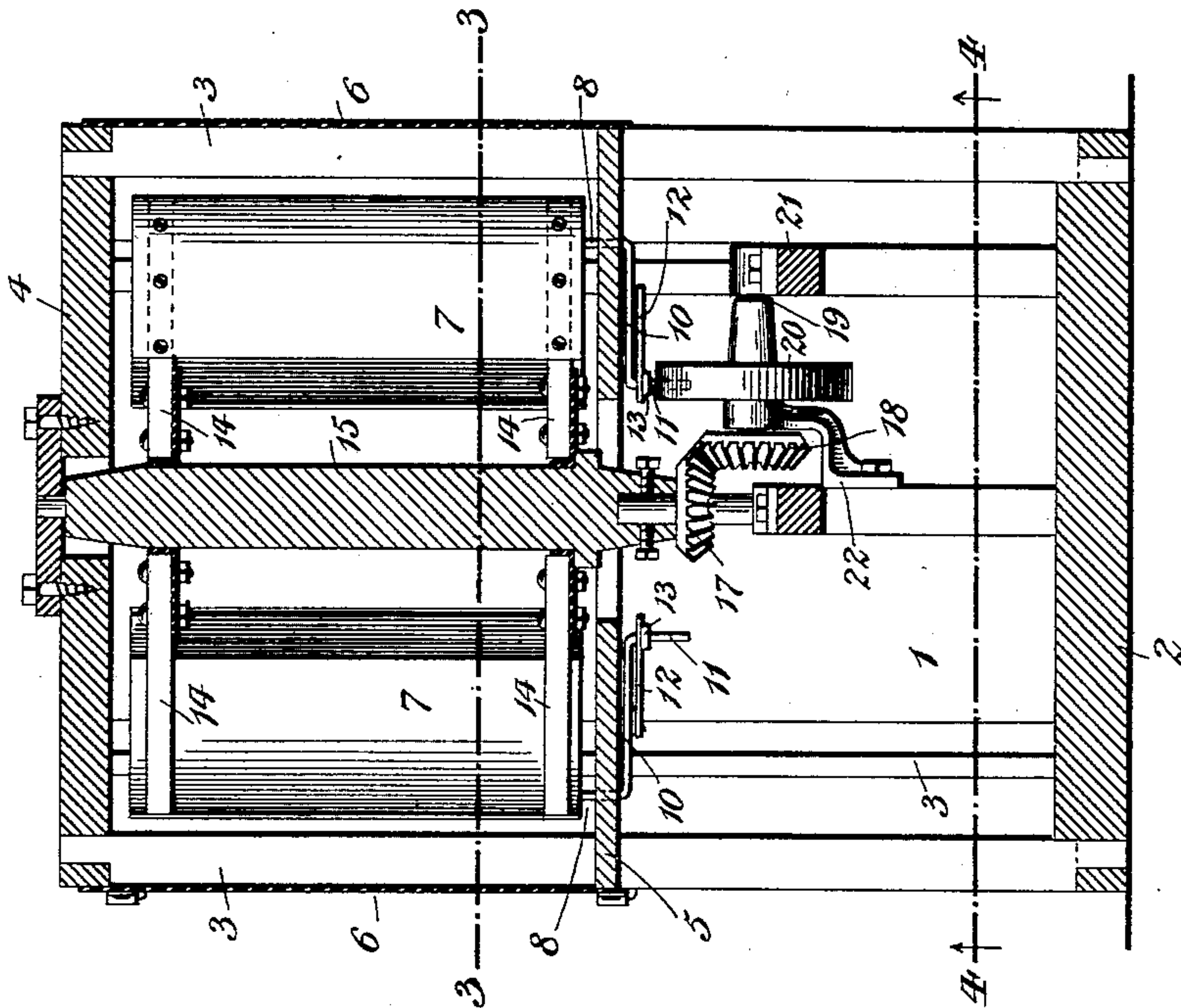
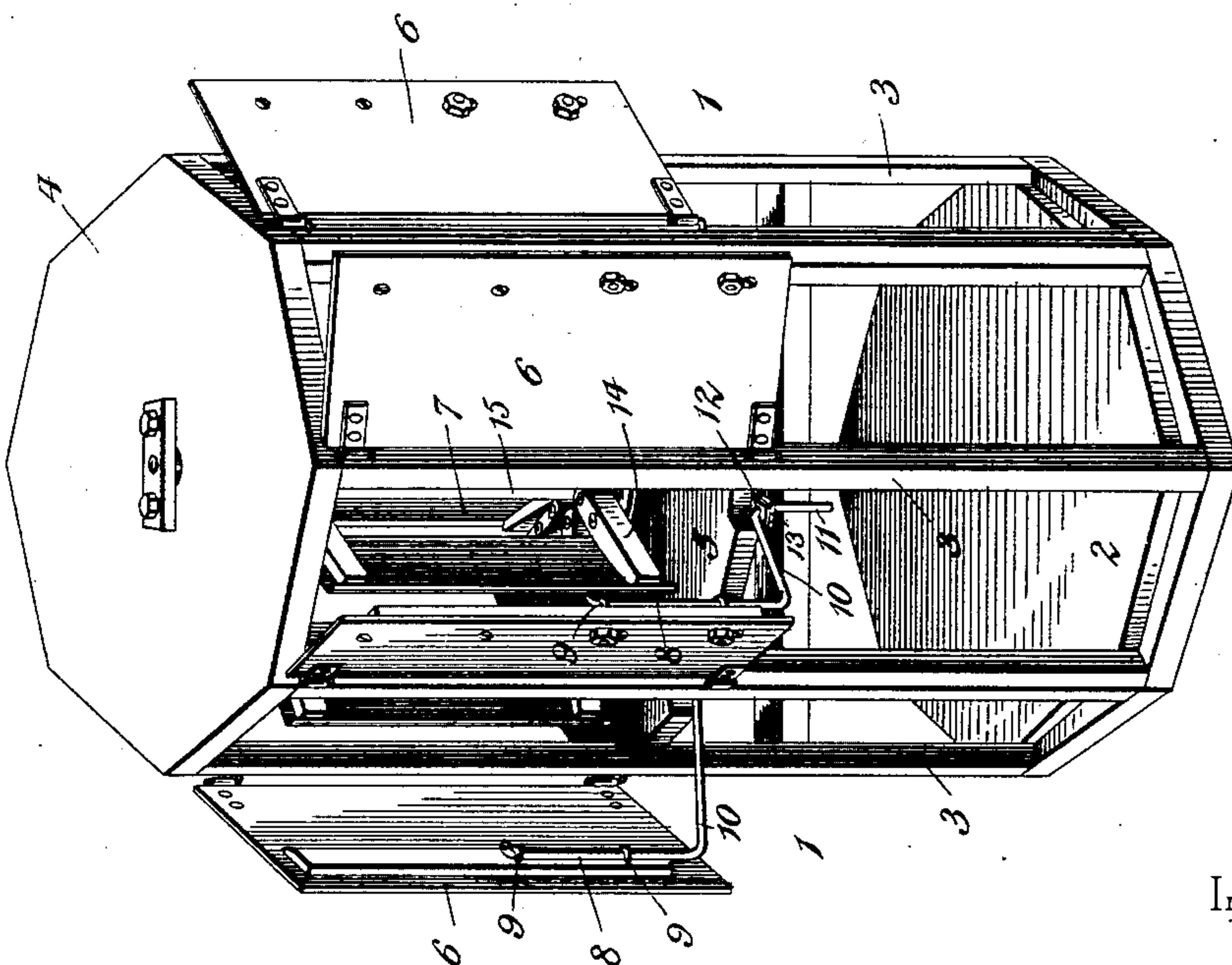


Fig: 1.



Inventor

Witnesses

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By his Attorneys,

Francis Evison

J. F. Riley

C. A. Snow & Co.

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Fig. 4.

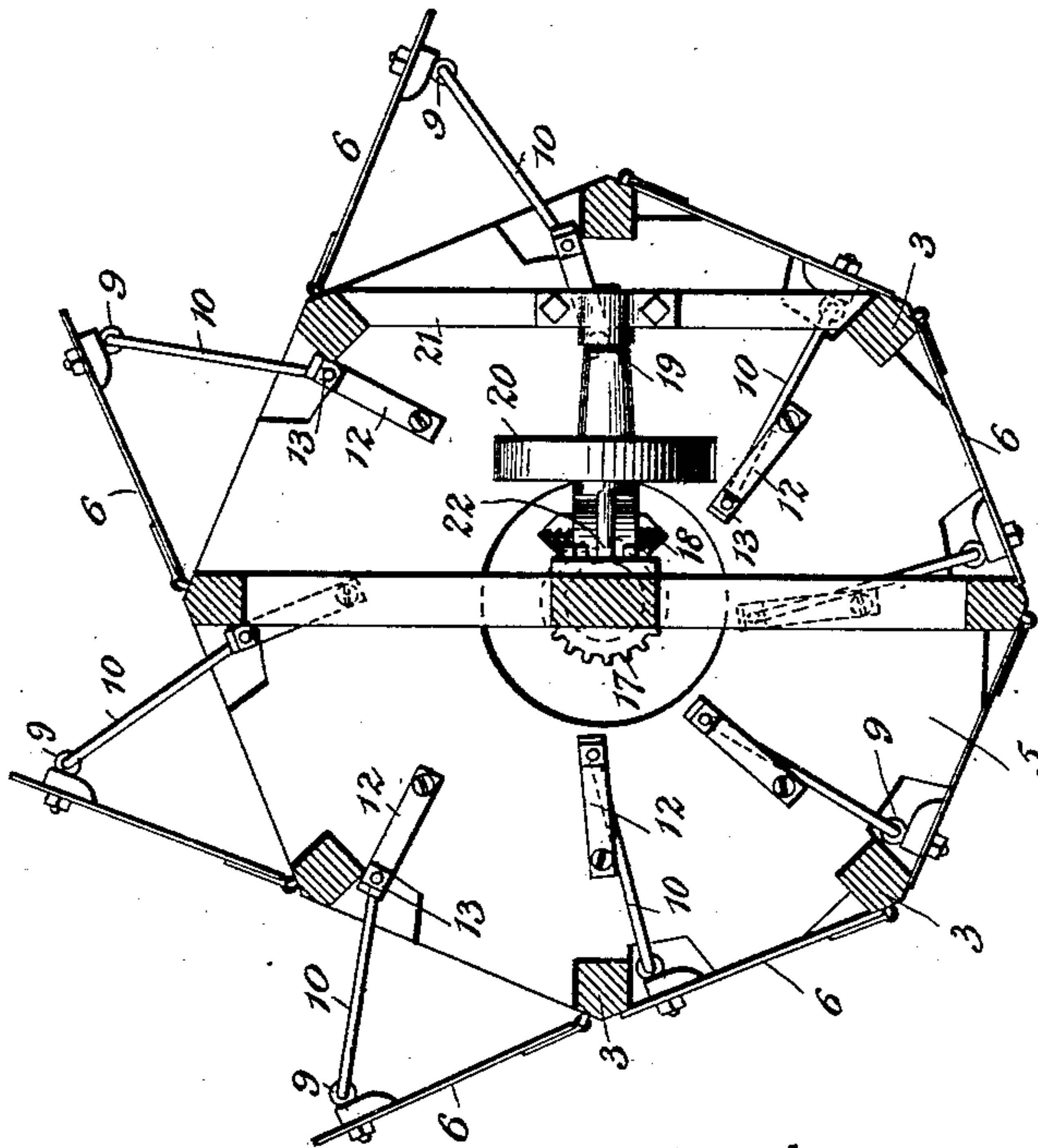
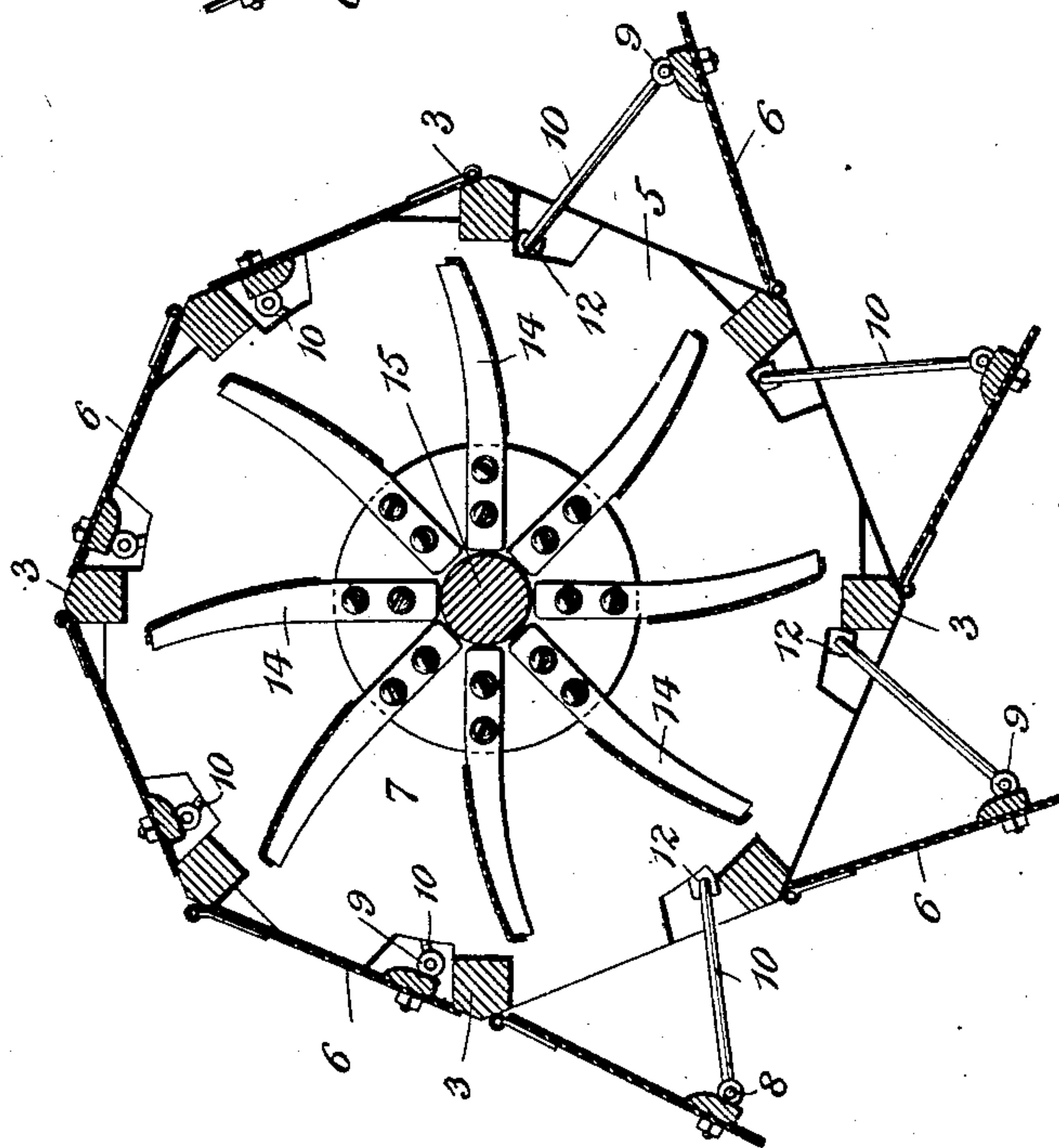


Fig. 3.



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UNITED STATES PATENT OFFICE.

FRANCIS EVISON, OF MORENCI, MICHIGAN.

WINDMILL.

SPECIFICATION forming part of Letters Patent No. 591,962, dated October 19, 1897.

Application filed May 29, 1897. Serial No. 638,744. (No model.)

To all whom it may concern:

Be it known that I, FRANCIS EVISON, a citizen of the United States, residing at Morenci, in the county of Lenawee and State of Michigan, have invented a new and useful Windmill, of which the following is a specification.

This invention relates to improvements in windmills.

The object of the present invention is to improve the construction of windmills and to provide a simple and exceedingly inexpensive one, which will permit a ready adjustment of its parts, to regulate the quantity of wind admitted to the wind-wheel, or the degree of exposure of the latter, in order to control the power of the windmill and adapt it for light or heavy machinery.

The invention consists in the construction and novel combination and arrangement of parts, as hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the claims hereto appended.

In the drawings, Figure 1 is a perspective view of a windmill constructed in accordance with this invention. Fig. 2 is a vertical sectional view. Fig. 3 is a horizontal sectional view on line 3 3 of Fig. 2. Fig. 4 is a similar view on line 4 4, showing the upper portion or casing in reverse plan.

Similar numerals of reference designate corresponding parts in the several figures of the drawings.

1 designates a supporting-frame comprising a horizontal bottom 2, uprights 3, a horizontal top 4, and a horizontal partition 5, mounted between the uprights and cooperating with the top 4 to form a casing. The uprights 3 are arranged in an annular series, the frame being preferably octagonal in horizontal section, and the upper portion of the uprights support hinged doors 6, adapted, when closed, to abut against the adjacent uprights.

The annular series of doors, which are preferably constructed of sheet metal or similar material, are capable of independent operation, and one or more are adapted to be opened or closed to regulate the degree of exposure of a horizontal wind-wheel 7 and control the wind-pressure, so as to adapt the windmill to light or heavy work.

A vertical rock-shaft 8 is journaled in suitable

bearings 9, at the inner face of each of the doors 6, near the free edge thereof, and is provided at its lower end with a depending L-shaped arm or crank 10, which has its vertical portion 11 forming a handle and connected with the bottom of the casing by a link 12. The link 12 is pivoted at one end to the lower face of the horizontal partition, and is provided at its other end with a perforation receiving the depending or vertical portion 11 of the crank, which is threaded for the reception of a nut 13.

The particular connection between the doors and the casing forms a double lock and is adapted to retain the doors both in their open and closed positions. When a door is open, the adjacent ends of the link and the horizontal portion of the crank swing beyond the center and abut against the adjacent upright, which forms a stop, and the door is thus locked in its open position. When the door is closed, the link and the horizontal portion of the crank fold, as shown, and retain the door in such position.

By means of the vertical portions 11 of the cranks the doors are readily manipulated to open and close them, and in a heavy wind the wind-wheel may be partially shielded or only a small portion of it exposed, and in a light wind the doors may be arranged to compress or concentrate the wind, and the back pressure of the same may also be readily regulated.

The wind-wheel 7 consists of a series of radially-arranged blades mounted on arms 14, which are connected with a vertical wind-wheel shaft 15, and the latter is journaled in suitable bearings of the supporting-frame. The vertical outer edges of the blades are bent at an angle to form flanges and to provide buckets and enable them to hold the air.

The lower portion of the wind-wheel shaft is connected by bevel gear-wheels 17 and 18 with a horizontal shaft 19, and the latter, which is journaled in suitable bearings, carries a pulley 20, adapted to receive a belt for communicating motion to the machinery to be operated, but any other suitable gearing may be employed for transmitting motion from the vertical wind-wheel shaft to the machine or device to be run. The lower end of the wind-wheel shaft is stepped in a suitable

bearing of a transverse beam 21, which has its ends attached to opposite uprights of the supporting-frame. The horizontal shaft has one end journaled on the beam 21, and its
5 other end supported by a horizontal bar 22, arranged parallel with the beam and supported by two of the uprights.

It will be seen that the devices for operating the doors will permit the latter to be
10 opened and closed independently of one another, so that the degree of exposure of the wind-wheel and the pressure of the wind may be regulated to adapt the windmill for operating light or heavy machinery. It will also
15 be apparent that such devices serve to lock the doors in their open and closed positions and prevent the said doors from accidentally opening or closing.

What I claim is—

20 1. In a windmill, the combination with a horizontal wind-wheel, of a casing receiving the same and provided with an annular series of hinged doors, vertical shafts journaled on the doors at the free edges thereof and pro-
25 vided with arms extending horizontally from

the shafts, and links pivoted to the casing and to the outer ends of the arms, the arm and link of each door being operated independently of the others and forming a lock to retain the doors in their open and closed
30 positions, substantially as described.

2. In a windmill, the combination with a horizontal wind-wheel, of a casing receiving the same and provided with an annular series
35 of hinged doors, the vertical shafts journaled on the doors at the free edges thereof and provided at their lower ends with depending cranks, the vertical portions thereof forming handles, and links pivoted to the casing and
40 to the vertical portions of the cranks, said links and cranks forming locks to hold the doors open and closed, substantially as described.

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

FRANCIS EVISON.

Witnesses:

F. E. CAWLEY,
C. D. HAUS.