

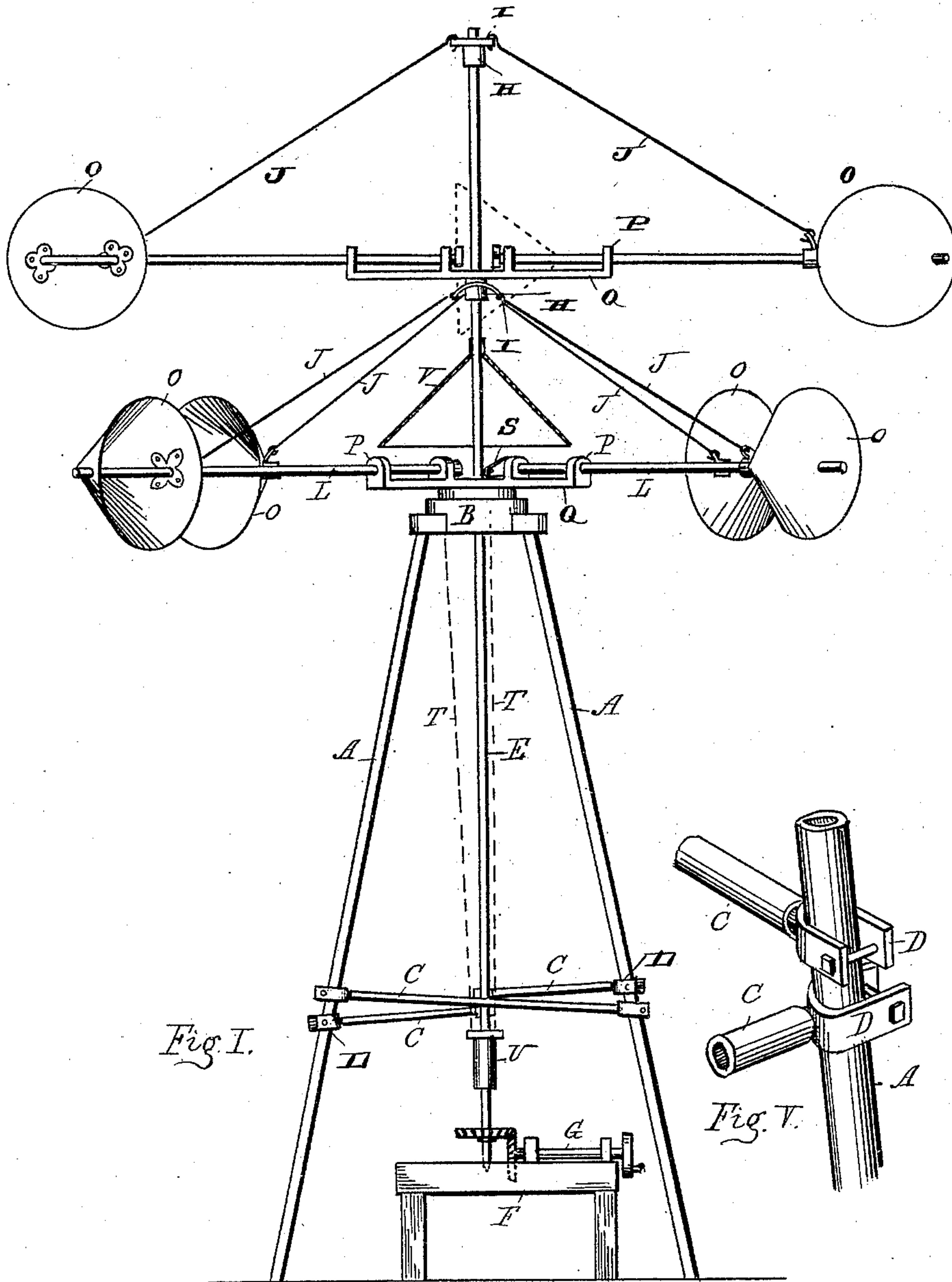
(No Model.)

2 Sheets—Sheet 1.

S. L. SMOLLEY & W. H. BONWELL, Jr.  
WIND WHEEL.

No. 474,308.

Patented May 3, 1892.



Witnesses.

Robert Kirk  
C Ayres

Inventors.

S. L. Smolley  
W. H. Bonwell Jr.  
By O. J. Bailey Atty

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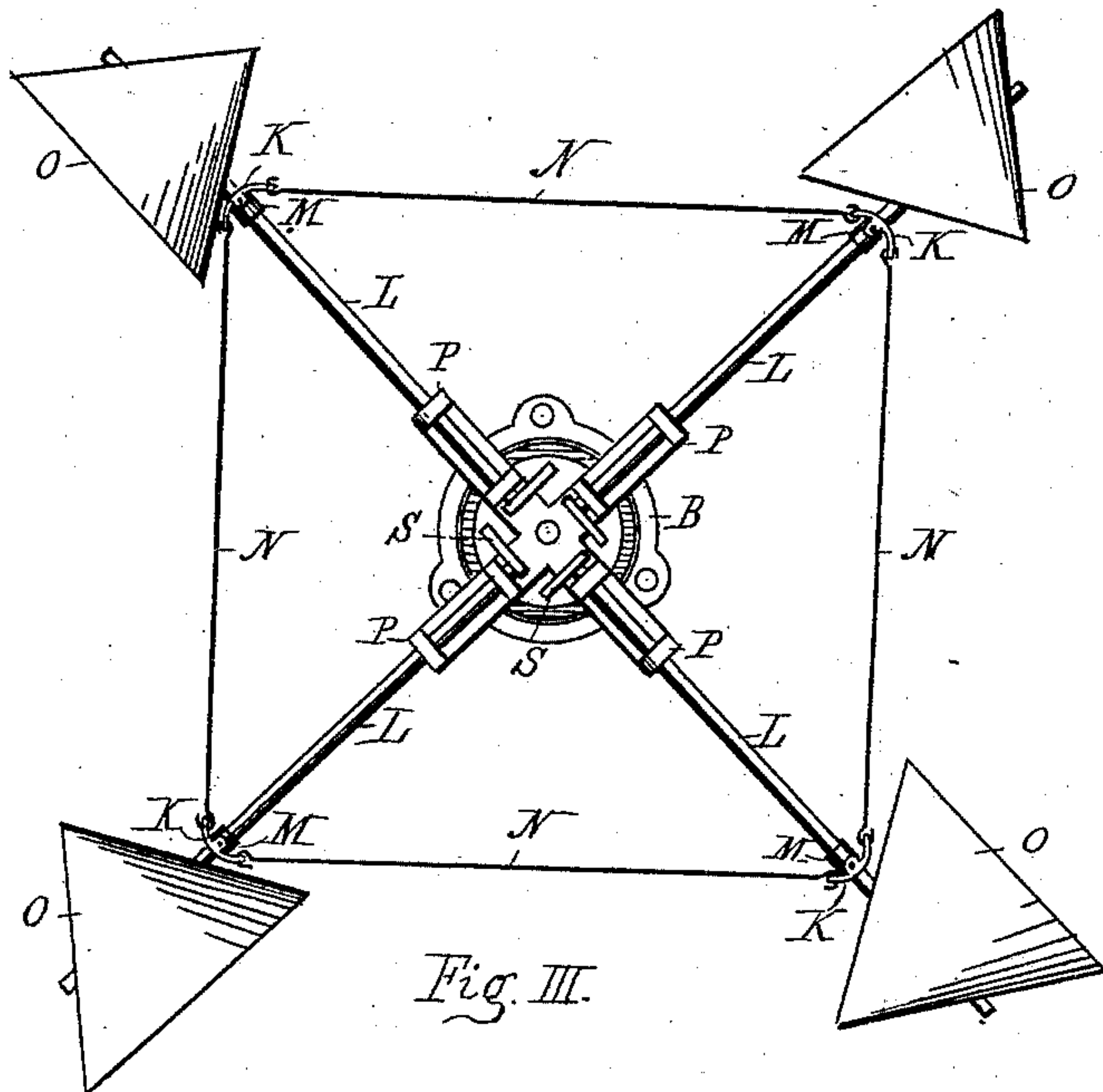


Fig. III.

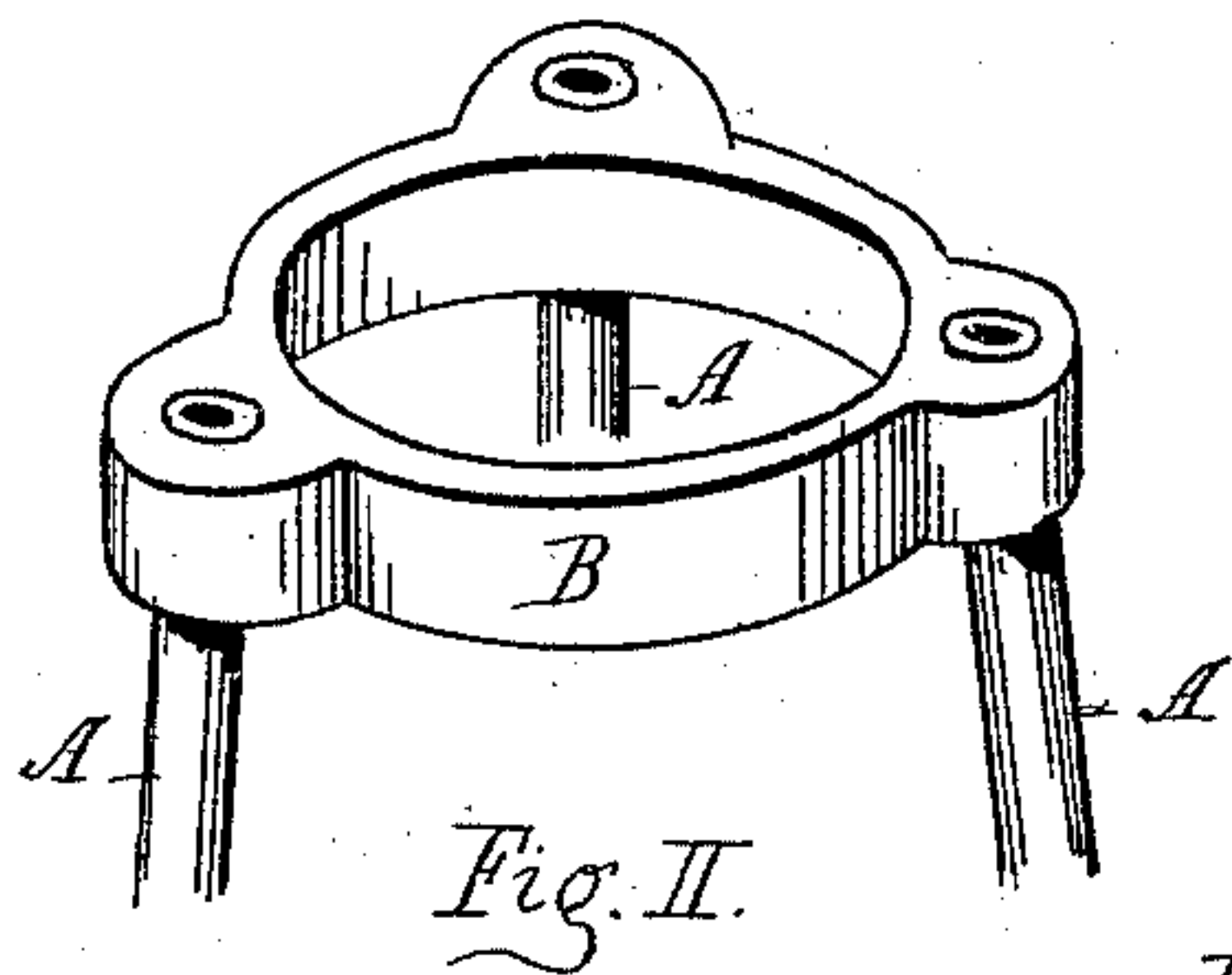


Fig. II.

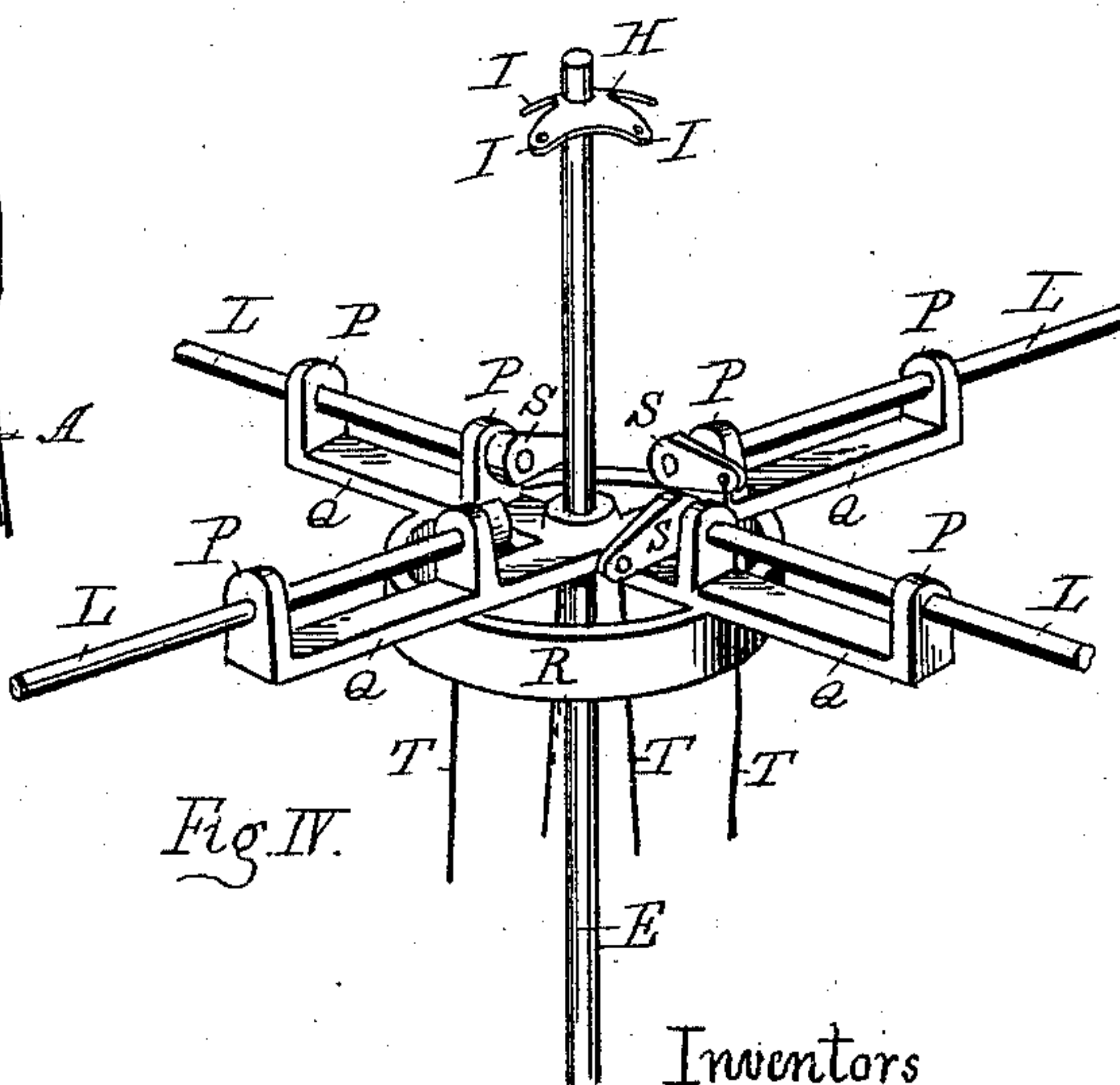


Fig. IV.

Witnesses

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# UNITED STATES PATENT OFFICE.

SILVANUS L. SMOLLEY AND WILLIAM H. BONWELL, JR., OF BROOKVILLE,  
INDIANA.

## WIND-WHEEL.

SPECIFICATION forming part of Letters Patent No. 474,308, dated May 3, 1892.

Application filed March 10, 1891. Serial No. 384,666. (No model.)

*To all whom it may concern:*

Be it known that we, SILVANUS L. SMOLLEY and WILLIAM H. BONWELL, Jr., of Brookville, in the county of Franklin and State of Indiana, have invented a new and useful Improvement in Wind-Wheels, which improvement is fully set forth in the following specification and accompanying drawings, in which—

Figure 1 is a side elevation of our improved wind-wheel; Fig. 2, the circular curb attached to the top of the tripod-frame; Fig. 3, a top or plan view of the curb, the ring or hub within the curb, the transverse arms, the sail-shafts, and the cranks attached thereto; Fig. 4, a perspective view of the same, and Fig. 5 a detail showing the method of attaching the adjustable transverse braces to the tripod-frame.

Our invention relates to improvements in wind-wheels; and its object is to produce a substantial and durable device, simple in construction, effective in operation, easily controlled, not liable to derangement, and capable of utilizing moderate power to the best advantage.

Referring to the accompanying drawings, A designates the tripod or supporting frame, which is made of galvanized-iron pipe. The lower ends are anchored to a suitable foundation and the upper ends secured in a circular curb B. The tripod-frame is made rigid by adjustable transverse braces C, which are also made of galvanized-iron pipe having their ends provided with jaws D, which when adjusted in the desired position, are securely clamped by screw-bolts. The main shaft E has its lower end journaled in a bench F, and by means of spur-wheels and a crank-shaft G transmits motion to a pump or other machinery. A cap H, provided with lugs I, is mounted on top of the main shaft and carries a series of stay-rods J, the lower ends of which are similarly attached to lugs projecting from plates K. The sail-shafts L turn freely in the plates, which at the same time are prevented from sliding inwardly on the shafts by collars M. Horizontal stay-rods N serve to hold the outer ends of the sail-shafts in proper relative positions. The sails O are made of galvanized iron in the form of hollow cones and are rigidly attached by plates and rivets to the sail-shafts, which are journaled near their inner

ends in lugs P on the transverse arms Q. These arms are integral and are keyed to the main shaft at their intersection. A ring R, through which centrally the shaft E passes, is also made integral with the arms and forms a hub or center which revolves within the curb B. The inner ends of the sail-shafts are provided with cranks S, which are operated by connecting-rods T, attached to a sliding sleeve U on the main shaft near its lower end. It will be understood that the sails are so balanced on their respective shafts that they are normally held in operative position, and that the movement of the wheel is not retarded or otherwise affected by changes in the direction of the wind. The cranks S on the sail-shafts are so arranged that when it is desired to stop the wheel the sleeve U on the main shaft is shifted upwardly and the sails are inverted. It is manifest that the force of the wind may be easily regulated by the same means.

A simple automatic appliance may be attached to the sleeve and the position of the sails thereby adjusted so as to increase or diminish the pressure, according to the demand. If more than ordinary power be required, the main shaft may be made longer and another series of sails attached thereto, as shown in Fig. 1. The working parts of the wheel are protected from rain, snow, and sleet by a hood V, suitably attached to the main shaft.

All parts of the structure are made of galvanized iron, and its strength and durability are thus assured.

We are aware that it is not new to use substantially conical sails in a wind-wheel, and that the adjustment of the sails of a wind-wheel has been made by a sliding sleeve and rods connecting with the wheel; also, that heretofore provision has been made for the automatic adjustment of the sails in and out of the wind.

What we claim as new is—

1. In combination with the tripod-frame A, having secured to its upper end the curb B, and the main shaft E, the ring R, having integral therewith the arms Q, carrying by means of the lugs P the sail-shafts L, said ring being placed within the hub B and said shaft passing centrally through said ring.

2. In a wind-wheel, and in combination with

the supporting-frame and central shaft, as described, the cap H on said shaft, the stay-rods J, connecting the same with the sail-shafts, the reversible conical sails O, the sail-shaft  
5 carried by arms Q, the ring R, and the curb B on the main shaft, to which said curb is secured, and crank S, and means for operating the same.

In testimony that we claim the foregoing we have hereunto set our hands, this 2d day of 10  
March, 1891, in the presence of witnesses.

SILVANUS L. SMOLLEY.

WILLIAM H. BONWELL, JR.

Witnesses:

WM. M. MCCLEERY,  
JAMES A. RODMAN.