

F. Peabody,

Wind Wheel,

N^o 12,870.

Patented May 15, 1855.

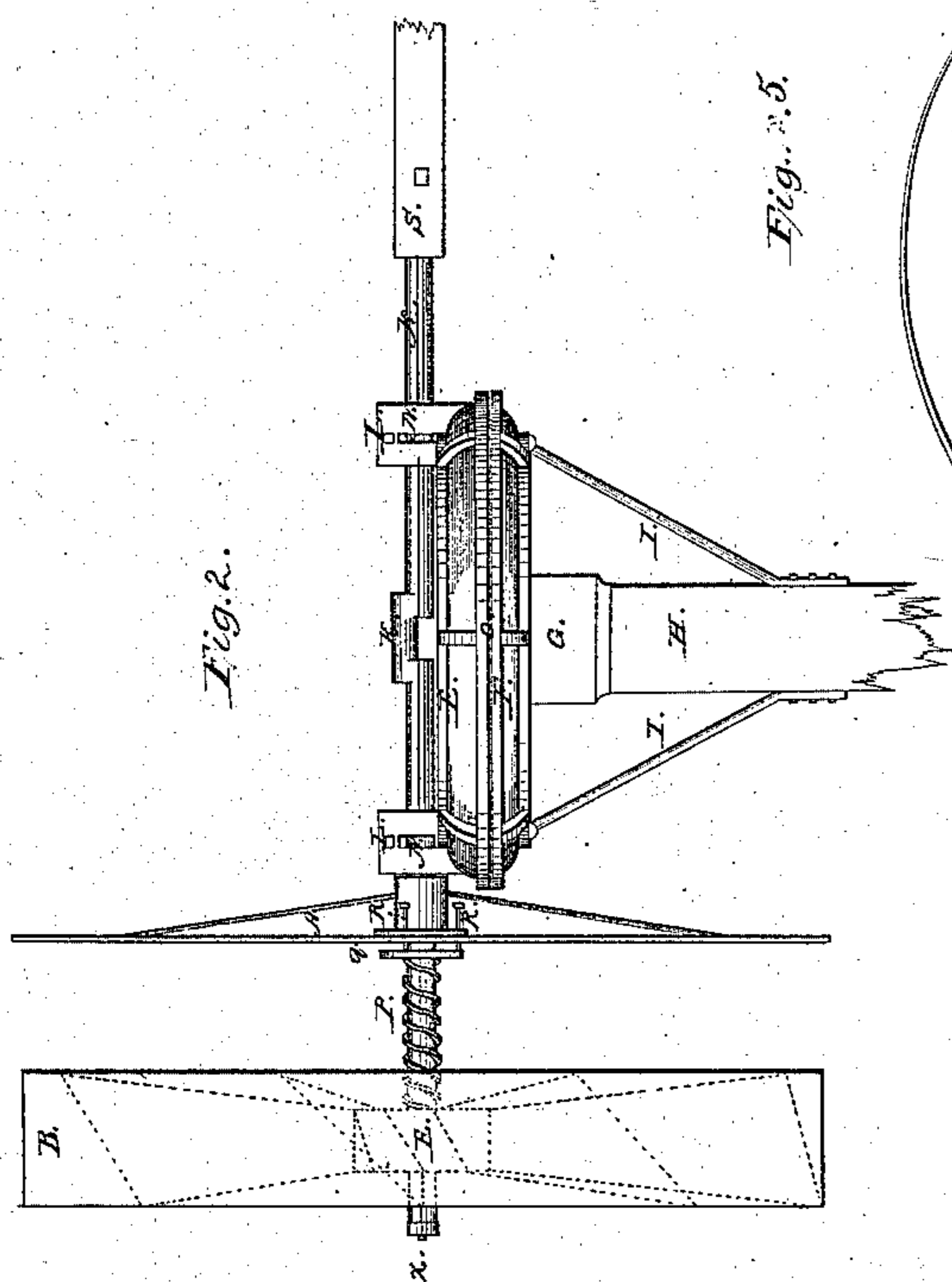


Fig. 3.

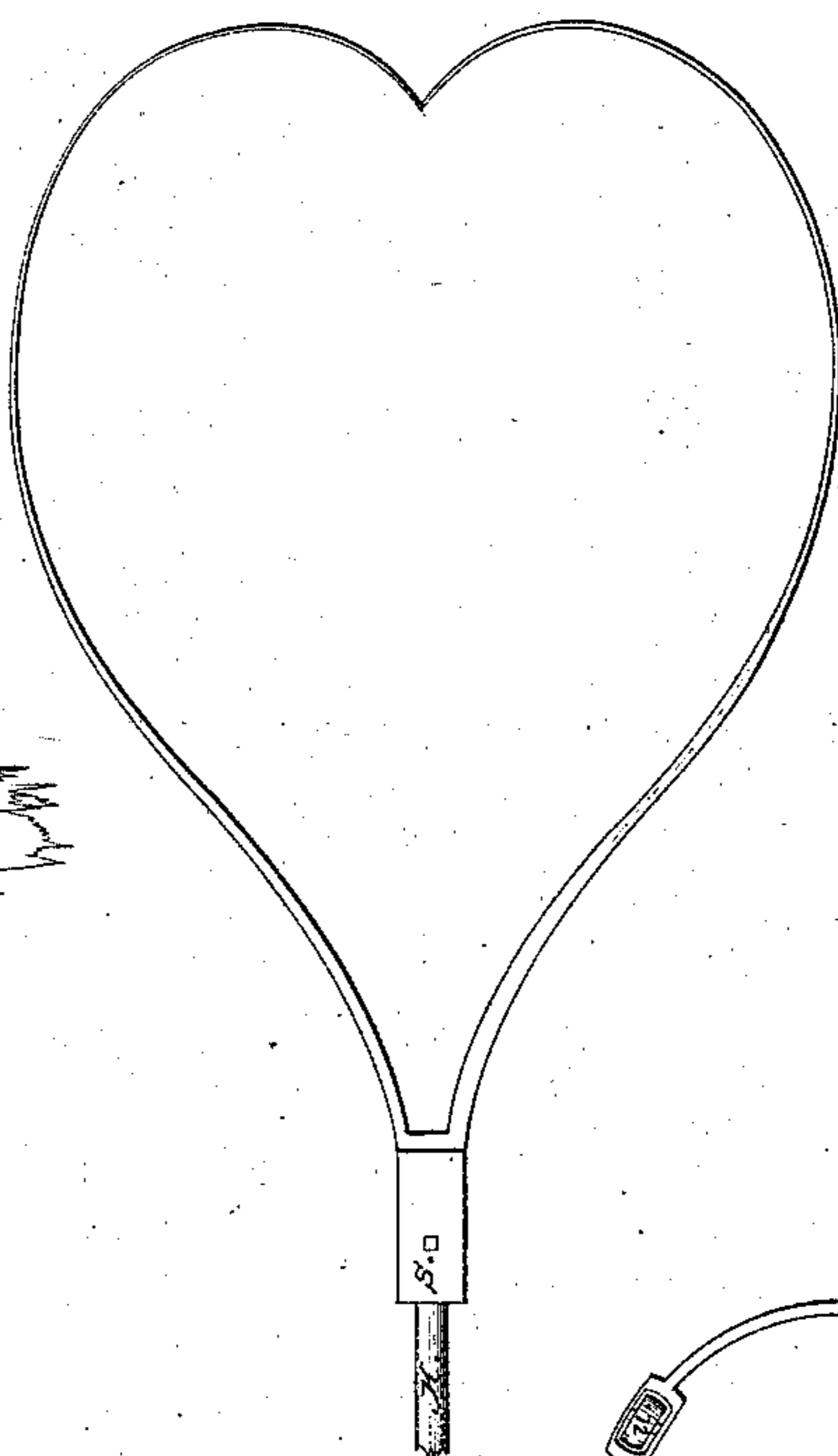


Fig. 6.

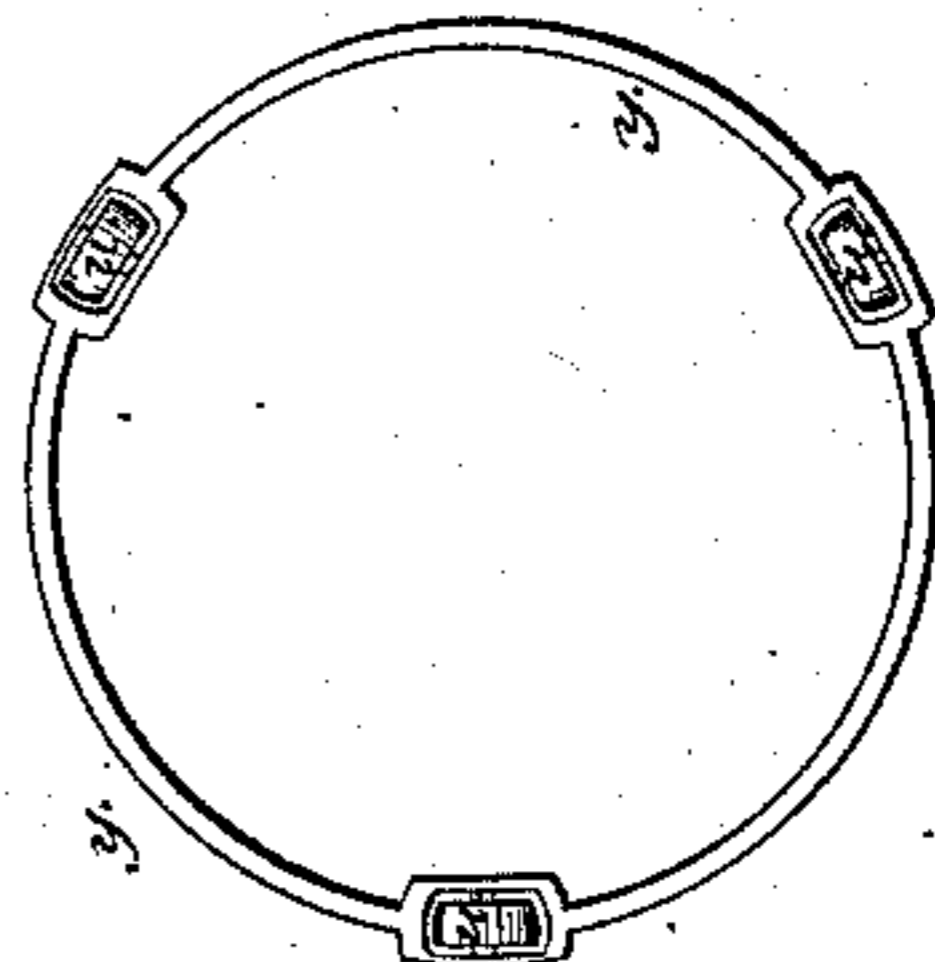


Fig. 1.

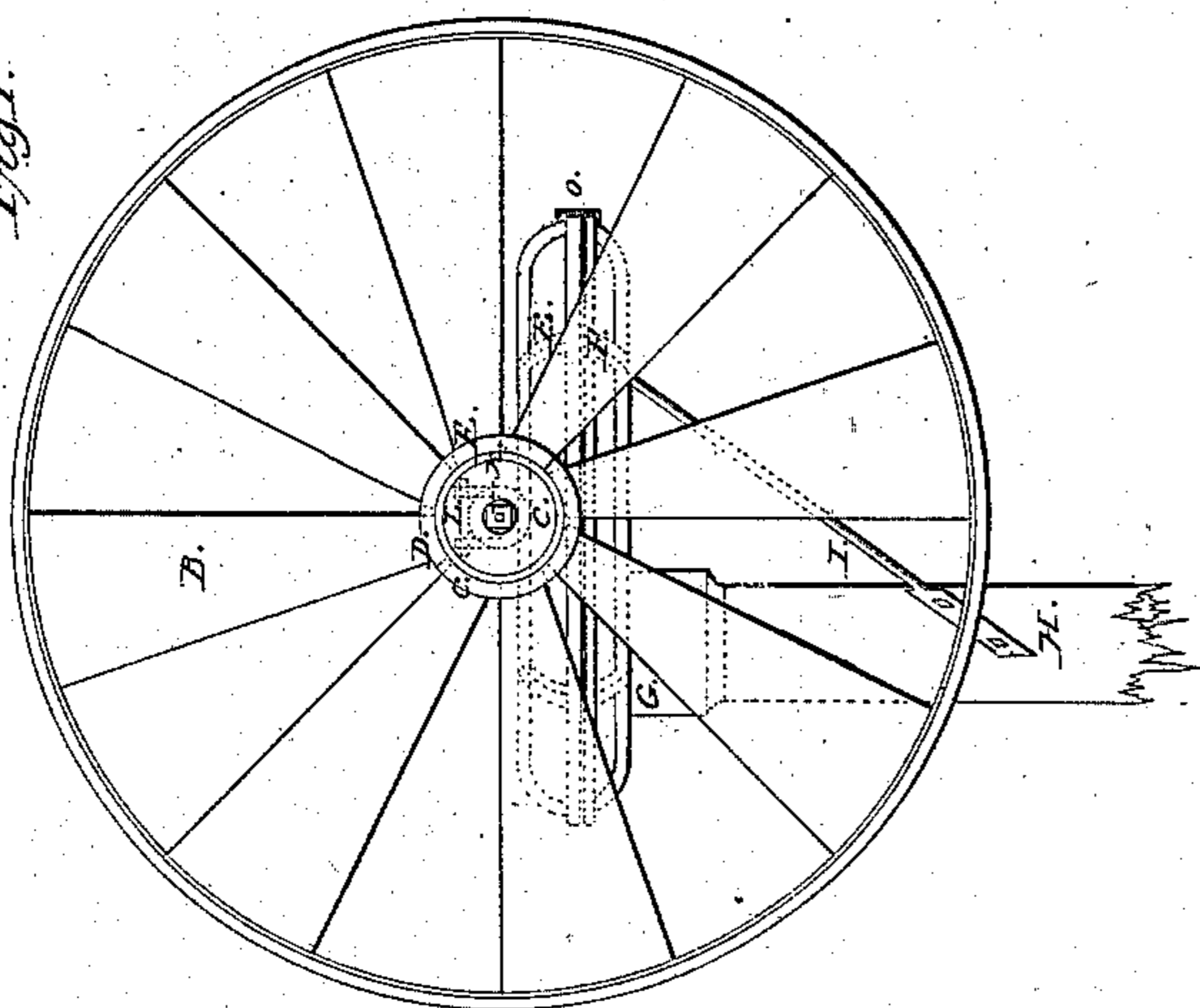


Fig. 3.

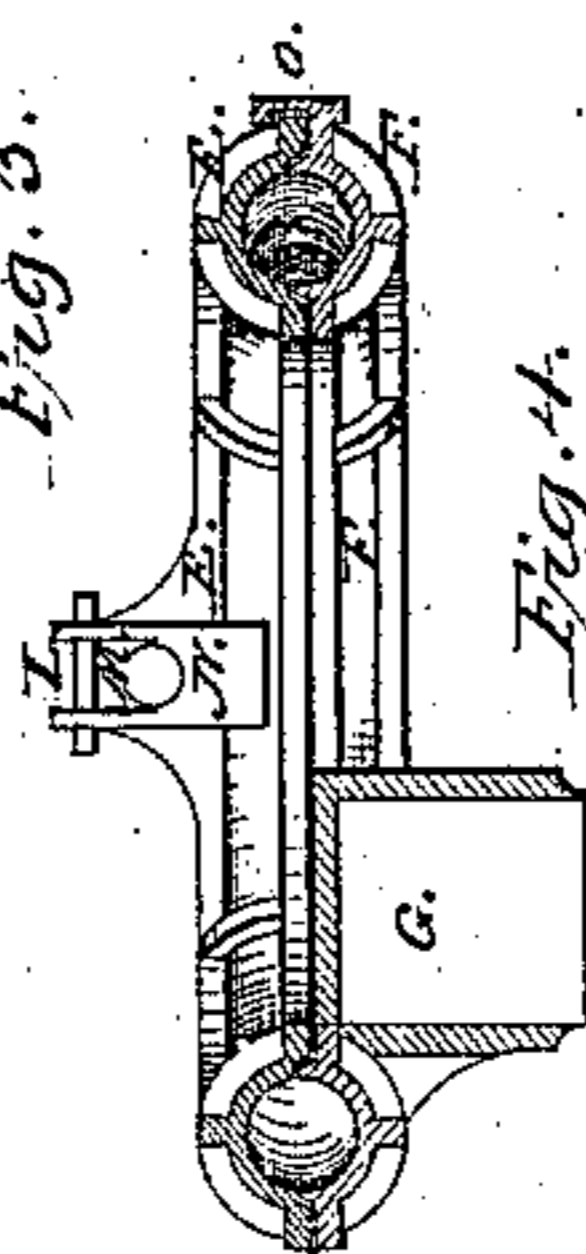
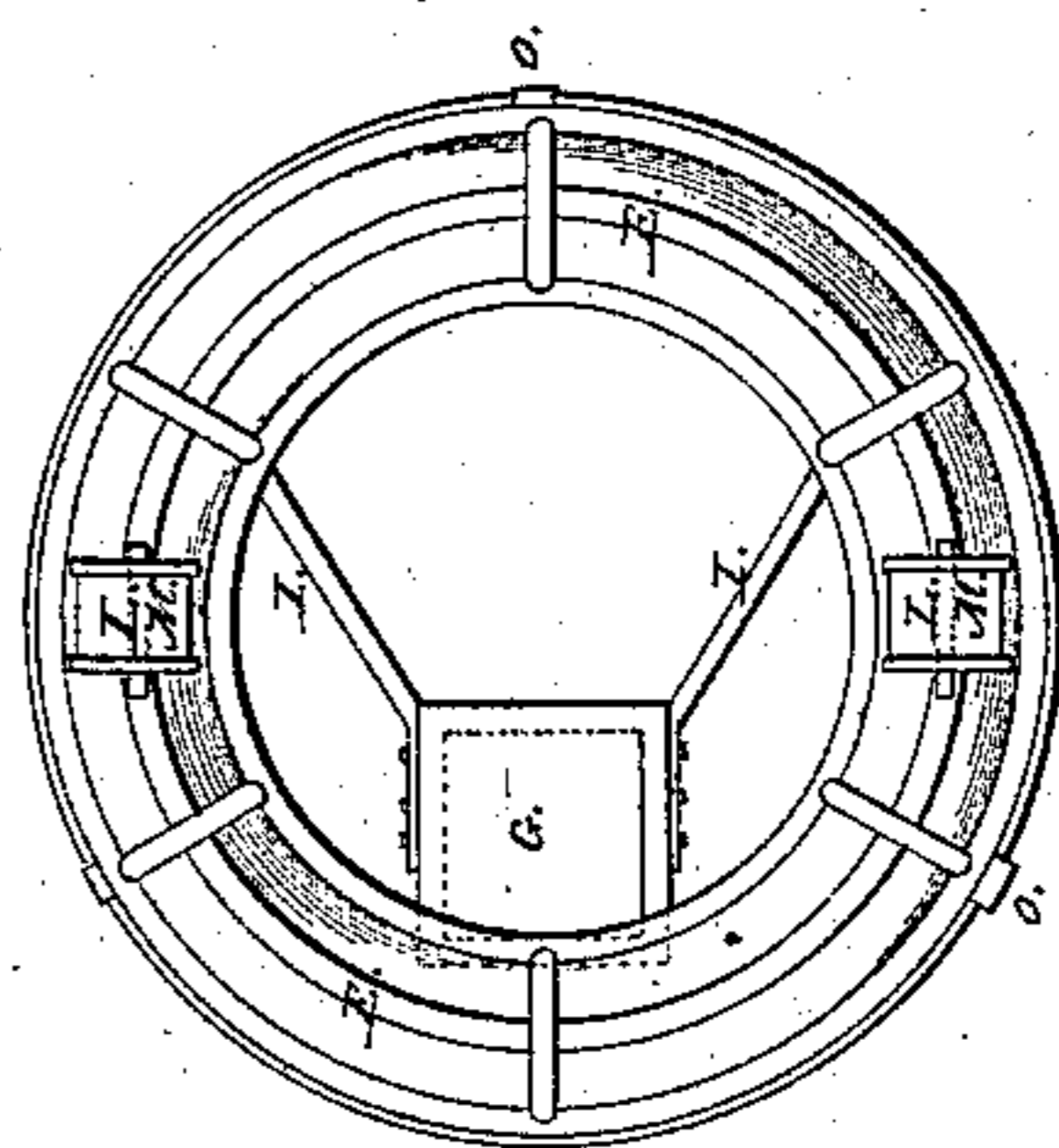


Fig. 4.



UNITED STATES PATENT OFFICE.

FRANCIS PEABODY, OF SALEM, MASSACHUSETTS.

METHOD OF REGULATING WINDMILLS.

Specification forming part of Letters Patent No. 12,870, dated May 15, 1855.

To all whom it may concern:

Be it known that I, FRANCIS PEABODY, of Salem, in the county of Essex and State of Massachusetts, have invented a new and useful Method of Regulating the Motion of Windmills, of which the following is a full, clear, and exact description, reference being had to the annexed drawings, making part of this specification.

The use of wind as a source of power dates back to a very early period of civilization, and the uncertainty of its force has alone prevented its more general use. Various plans have been adopted to obviate this difficulty. The furling and unfurling of sails, turning the arms to and from the wind by aid of a regulator acting through levers and springs, are the plans which have been most commonly used, but they all complicate the machine and so materially add to its cost that I have originated my present invention, which I denominate the "Essex wind-wheel."

In the accompanying drawings, Figure 1 is a front view of my wheel; Fig. 2, a side elevation. Figs. 3, 4, 5 and 6 are details, which will be referred to hereinafter.

To enable others skilled in the art to understand my invention, I will proceed to explain the manner in which I have carried it out, describing first the method which I have adopted for the purpose of keeping the face of the wheel turned constantly toward the wind, and then the device by which the wheel is rendered self-regulating, and by which it adjusts itself to the varying force of the wind. The wheel, with its regulating apparatus, is placed at the top of the column H.

F is a circular trough. (Seen in elevation in Fig. 2 and in section in Fig. 3.) It is secured to the top of the column H by means of the socket G. This trough is placed eccentrically with respect to the post H, as it is necessary that the pump-rod descend from the center, round which the wheel revolves in a horizontal plane.

The trough F is stayed to the column by suitable braces I, and upon it rests the cover E, which carries all the moving parts and is similar in form to the trough F. The two are so formed, as seen in section in Fig. 3, as to shed the rain from the annular space inclosed between them, and they are kept slightly

separated by means of the friction-rollers *u*, (seen detached in Fig. 6,) which are held in place by the ring *y*, which carries them. Upon these rollers the upper portion of the annular trunk revolves, and it is preserved from being blown off by three ears or clamps *o*, Figs. 3 and 4, two of which are cast with the trough F, the third being applied by means of a dovetailed groove after the parts are put together. This clamp is then secured by a pin.

The parts thus explained form a complete turn-table, the upper portion moving upon the lower with but little friction.

K is the shaft which carries the wind-wheel and its vane. It runs in boxes N upon the top of the circular plate E, the caps M, which confine the shaft in place, being secured by pins L, which pass through grooves in their upper surface.

At S is attached the vane or counterpoise, (seen in Fig. 5,) which serves the purpose of balancing the weight of the wind-wheel and also to keep the face of the latter always directed toward the wind. It may be constructed either of sheet metal or of canvas or other suitable substance stretched upon a wrought-iron frame. The other end of the shaft K carries the wind-wheel and the device by which the force of the wind is graduated, which will now be described.

A is a disk, of wood or sheet metal, secured to the shaft K in any suitable manner, and revolving with it.

B is the wind-wheel, which is constructed of sheet metal or otherwise, the inclined vanes being permanently secured to the rim and hub C. The wheel is fitted to the shaft K with a spline, so that the two revolve together, while the wheel is allowed to move to and from the disk A.

q is a ring or circular plate, which slides freely upon the shaft K and is adjusted to a greater or less distance from the disk A by the screws R.

P is a spiral spring which surrounds the shaft K, and bears one end against the hub of the wind-wheel, the other against the plate *q*. The wheel is thus pressed constantly from the disk, the force of the springs being adjusted by the screws R. By this arrangement the screen or disk A acts as a regulator to

the wheel, the spiral spring yielding whenever the force of the wind increases, by which means the wheel is made to approach the disk and the passage for the air between the two is contracted. The velocity of the wheel is thus checked or prevented from becoming excessive, and as the wind increases the spring again separates the wheel and disk and the wind is allowed to exert an increased power. Thus a variable wind is allowed to exert a constant power upon the pump, the rod of which is connected to the crank upon the shaft. K is the center of motion of the turn-table. When larger wheels are used or in establishments where a variable amount of power is required, it becomes necessary to regulate the speed of the wheel to the varying work to be performed, as well as to the force of the wind. In such case the wheel may be made fast upon its shaft and the disk moved toward or from the wheel by suitable

screws or levers operated by hand, and thus with a light wind or when considerable machinery is to be driven by the wheel the disk may be moved back, and when the work upon the wheel is light or the wind is heavy the disk may be brought up nearer to the wheel, and when the wheel is to be stopped entirely the disk may be made to shut up close against it, which will entirely neutralize the force of the wind to turn the wheel.

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

Regulating the action of the wind upon the wheel by means of the disk A, constructed and operating in the manner substantially as herein set forth.

FRANCIS PEABODY.

Witnesses:

SAM. COOPER,

JOHN S. CLOW.