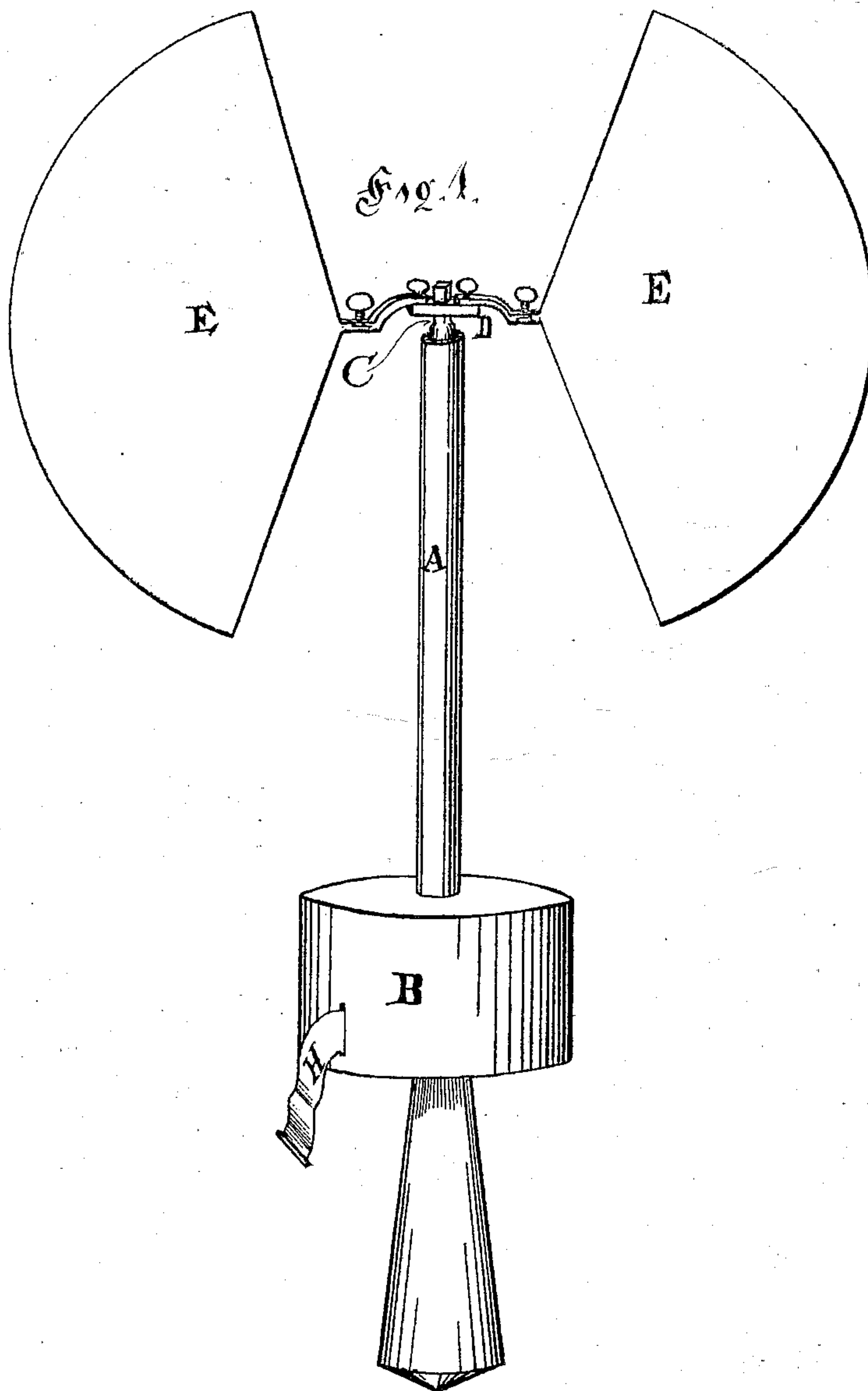


C. H. CLARK.

Automatic Fans.

No. 135,524.

Patented Feb. 4, 1873.



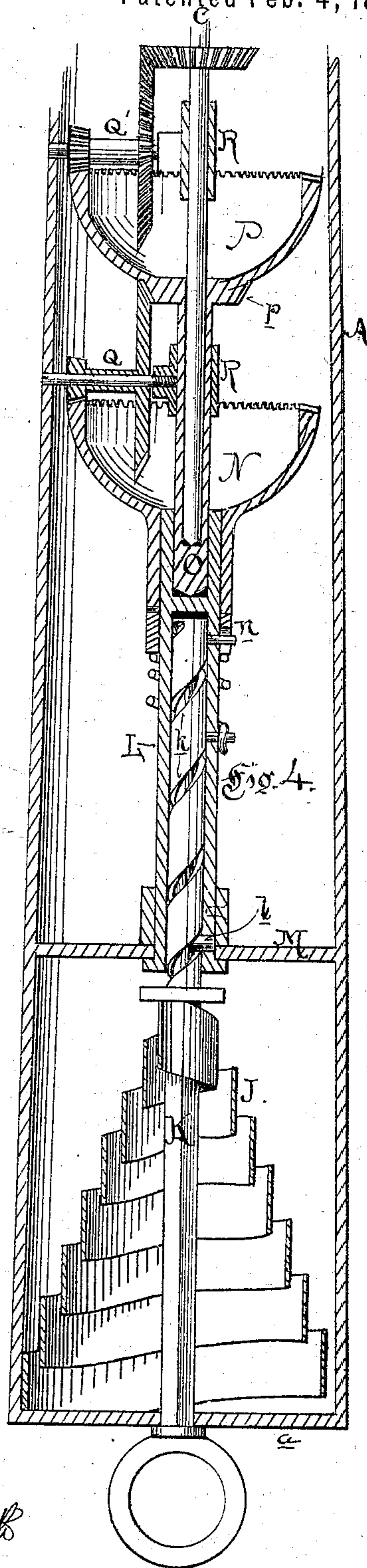
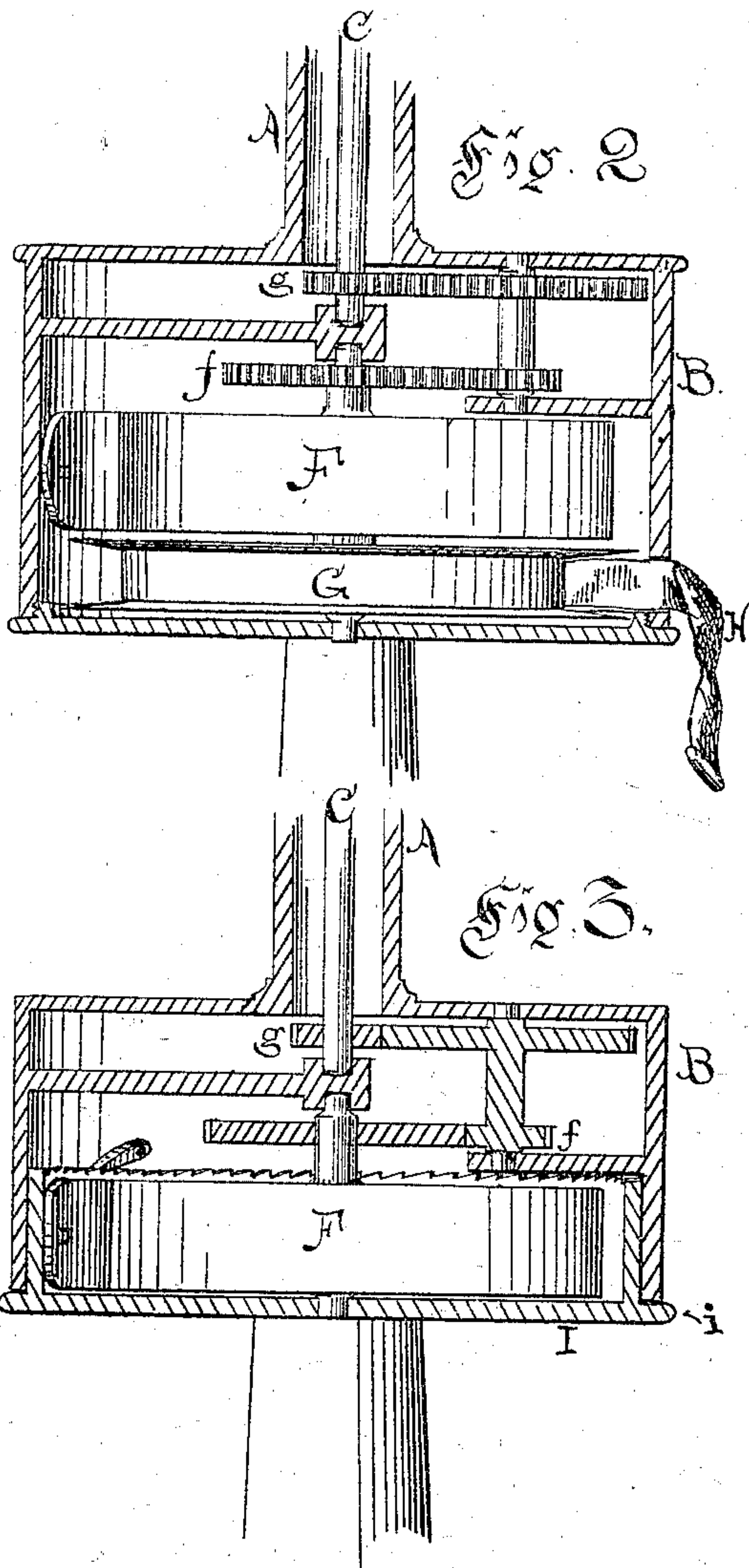
Witnesses.  
E. M. Gallaher.  
Geo. Bartle

Inventor.  
Charles H. Clark  
By his atty.  
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# UNITED STATES PATENT OFFICE.

CHARLES H. CLARK, OF HARTFORD, CONNECTICUT, ASSIGNOR TO HIMSELF,  
CHARLES H. LONGLEY, AND NEPHTHALI A. DURHAM, OF SAME PLACE.

## IMPROVEMENT IN AUTOMATIC FANS.

Specification forming part of Letters Patent No. 135,524, dated February 4, 1873.

*To all whom it may concern:*

Be it known that I, CHARLES H. CLARK, of Hartford, in the county of Hartford and State of Connecticut, have invented a new and useful Improvement in Automatic Fans; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawing, in which—

Figure 1 is a perspective view of my fan. Fig. 2 is a central sectional elevation of the same. Fig. 3 shows the train of gearing which transmits motion from the spring-motor to the fan-shaft. Fig. 4 is a central sectional elevation, showing an arrangement of gearing to employ a helical spring.

My invention relates to that class of fans called automatic fans, which heretofore have required a base or stand for support while in operation, or some means whereby the same may be clamped fast to the edge of a table, to a chair, or some other article of furniture.

I am aware that many such contrivances have been made; but I am not aware that any automatic or mechanical fan capable of, or suitable for, holding in the hand has ever been constructed.

My invention, therefore, consists in a hand or portable revolving or vibrating fan provided with motor machinery located in the handle, as hereinafter more fully set forth.

That others may fully understand my invention, I will particularly describe it.

A is the handle or stock of my fan. It is made tubular, and may be constructed of metal, wood, bamboo, or other suitable material. Near the bottom is a small case, B, which contains the motor machinery, the prime mover being a spring—either helical or coiled. It is not necessary that the mechanism should continue to run without rewinding more than fifteen or twenty minutes, and, therefore, I can employ a short but very strong spring, and inclose the same in a very small and compact space. Any suitable train may be employed to transmit motion from the spring to the central shaft C, to the top of which the revolving head D and fans or vanes E are attached.

While I do not wish to confine myself to a specific arrangement of train movement, I will describe in detail the mechanism which I prefer to employ.

Within the case B is the spring F, wound as usual upon an arbor, and communicating motion to the shaft C by means of the train *f g*. This train is similar to the trains usually employed in clock-work. The speed of shaft C may be augmented by similar multiplying-gear to any desired extent. At the lower end of the arbor of the spring F I propose to place a spool, G, and upon said spool I place a ribbon, H, the end of which protrudes through an orifice in the case B. When the spring uncoils the ribbon H is wound up upon the spool G, and when said ribbon is drawn out the spool and arbor are rotated and the spring F is "wound up." Suitable ratchets and pawls are inserted to prevent the retrograde movement of spring or the spool.

If desired, an independent spring may be placed within the spool G, so that when the ribbon has been drawn out to wind the spring F said independent spring may, immediately upon releasing said ribbon, retract and wind it up again. To effect this purpose any mechanic will readily understand that it will only be necessary to couple said spool to the spring-arbor by means of a ratchet and pinion, which will permit said spool to be revolved backward thereon freely, but which will not permit it to be revolved forward by pulling out the ribbon H without turning said arbor also. For the purposes contemplated in this invention it is not required that the mechanism should continue to run more than a few minutes at one time, and therefore a short spring may be employed, and its frequent rewinding by drawing out a few inches of ribbon will not be either inconvenient or objectionable. Another method of rewinding is exhibited in Fig. 3, wherein the spring F is shown wound within a barrel, I, which fits within the case B and forms the bottom of the same. One end of the spring F is attached to its arbor, and the other end is attached to the inside of the barrel I; therefore the spring may be wound up by rotating said barrel, and this may easily be effected by taking hold of a projecting edge of the same, as at *i*, and turning it around in the case. A suitable ratchet and pawl is inserted to prevent any retrograde movement of the said barrel.

In Fig. 4 is shown a method of employing a helical spring for the purpose of propelling



the shaft C. The helical spring J is placed within the case, which in this arrangement is merely a continuation of the handle or stock A. A shaft, K, made square at its lower portion, where it slides through the bottom *a*, so as to prevent any rotation on its axis, serves to compress said spring, when it is drawn downward through said bottom *a*. The upper end of said shaft is provided with a spiral groove or screw-thread, *k*, of great pitch, and is fitted to slide in a sleeve, L, from which a pin, *l*, projects into said groove, so that when said shaft is moved endwise without rotation by the expansion of the spring said sleeve will be caused to rotate by the action of said groove and pin. The sleeve L revolves in bearings M, and at its upper end is a bowl-shaped plate, N, having at its edge the cogs of a miter-gear, as shown. The sleeve L and gear N are coupled by a spring-clutch, *n*, so that the sleeve L may freely rotate backward when the shaft K is drawn downward to depress the motor-spring. The interior of the sleeve L forms a bearing for a second sleeve or shaft, O, at the upper end of which is a second bowl-shaped gear, P, provided also at its bottom with a small miter-gear, *p*. The motion of gear N is transmitted to the gear P by means of the

short counter-shaft and pinions Q. The shaft C has its lower bearing or step in the hollow shaft or sleeve O, and motion is transmitted from gear P to said shaft by counter-shaft and pinion Q'. The counter-shafts Q Q' may be tubular, and turn upon stationary axles projecting from the collars R, and held stationary at their outer ends by attachment to the stationary surrounding case.

Additional sets of gears similar to N P, with counter-shafts and pinions, may be inserted to "speed up" the shaft C to any required degree.

Having described my invention, what I claim as new is—

1. In combination with the spring F, the spool G and the ribbon H, substantially as described, for the purpose set forth.

2. The combination and arrangement, within the handle or stock A, of the helical spring J, screw-shaft K, sleeve and pin L *l*, speeding train N P Q Q', and the shaft C, substantially as shown, and for the purpose set forth.

CHARLES H. CLARK.

Witnesses:

R. D. O. SMITH,  
GEO. BARTLE.