(No Model.)

2 Sheets—Sheet 1.

W. R. FOWLER.

FLY FAN.

No. 321,352. Patented June 30, 1885.

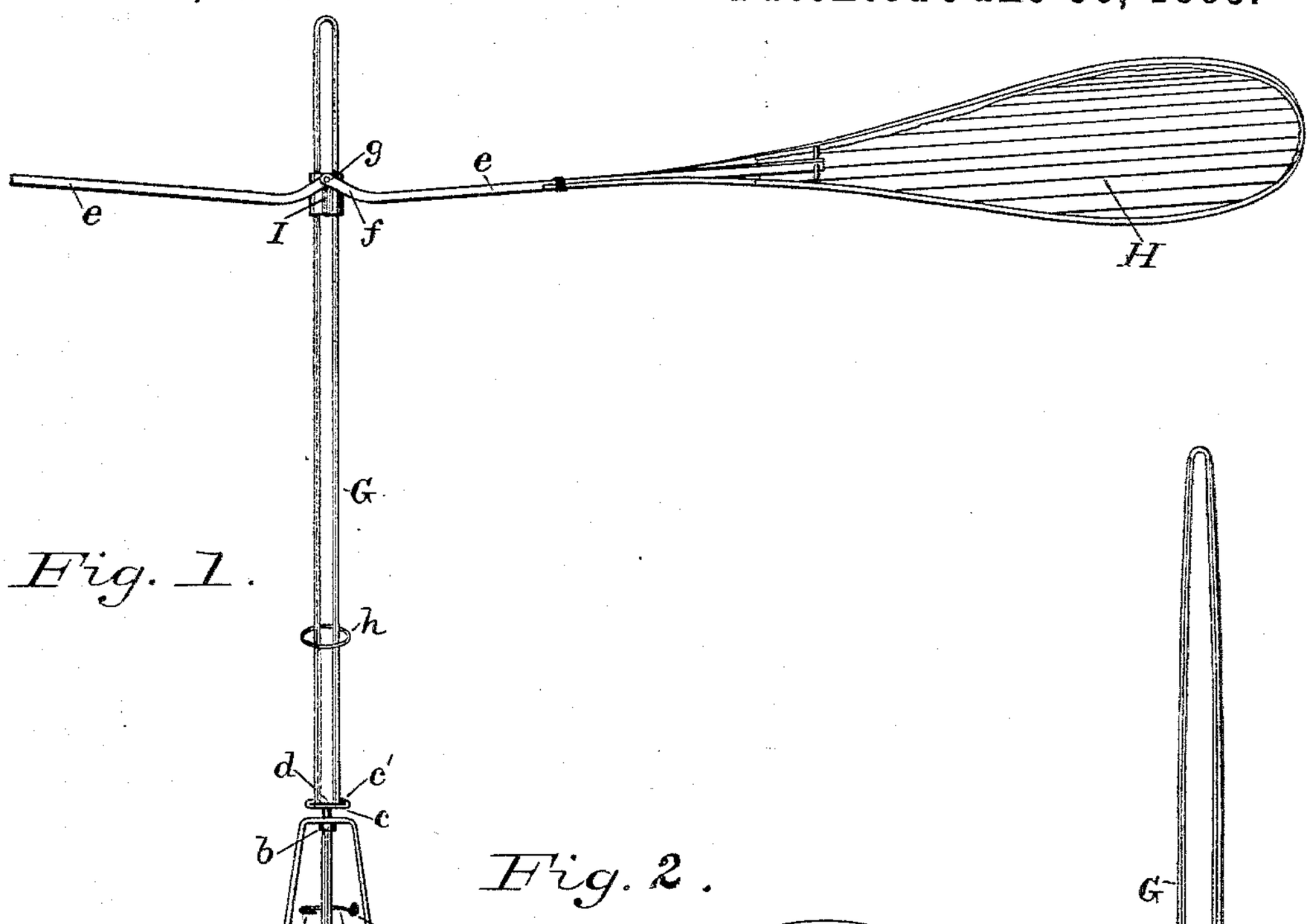


Fig. 1.

Fig. 3.

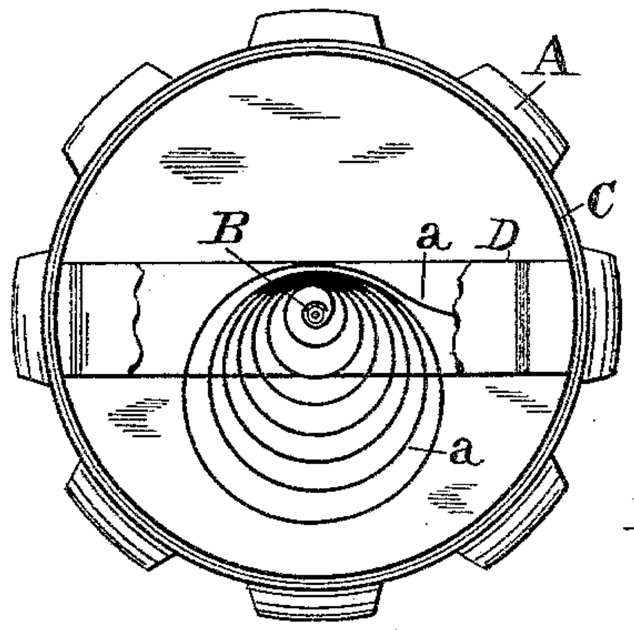
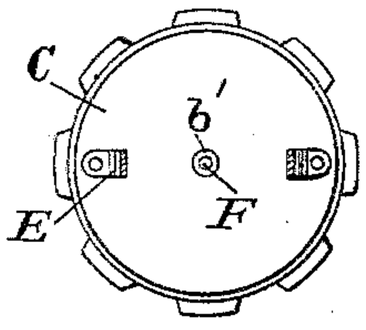


Fig. 2.

Fig. 5.



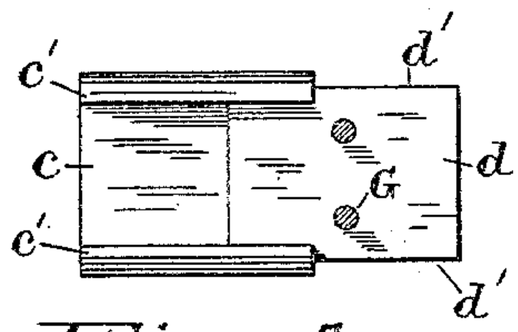


Fig. 4.

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(No Model.) 2 Sheets—Sheet 2.

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FLY FAN.

No. 321,352. Patented June 30, 1885.

Fig. 6.

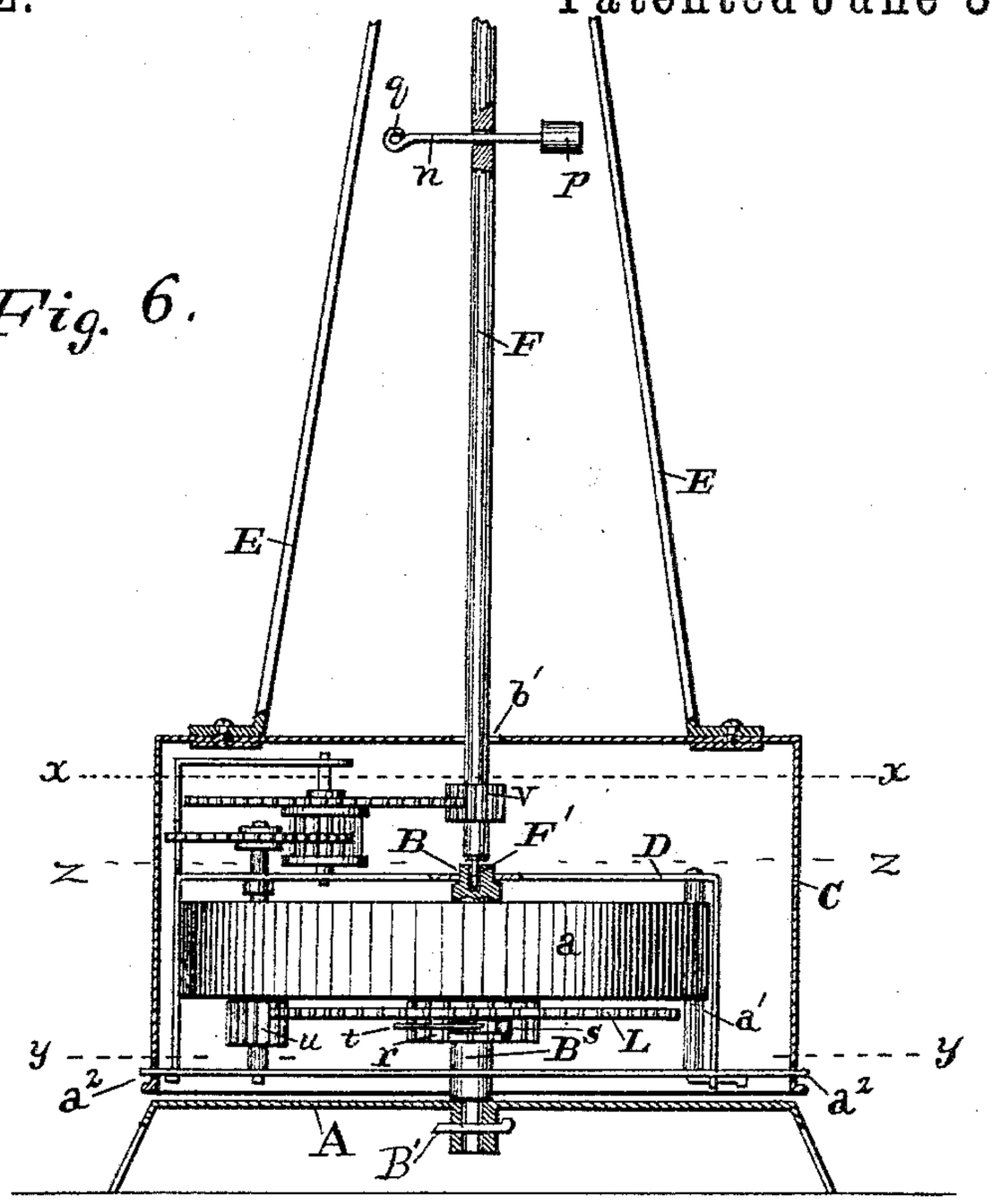


Fig. 7.

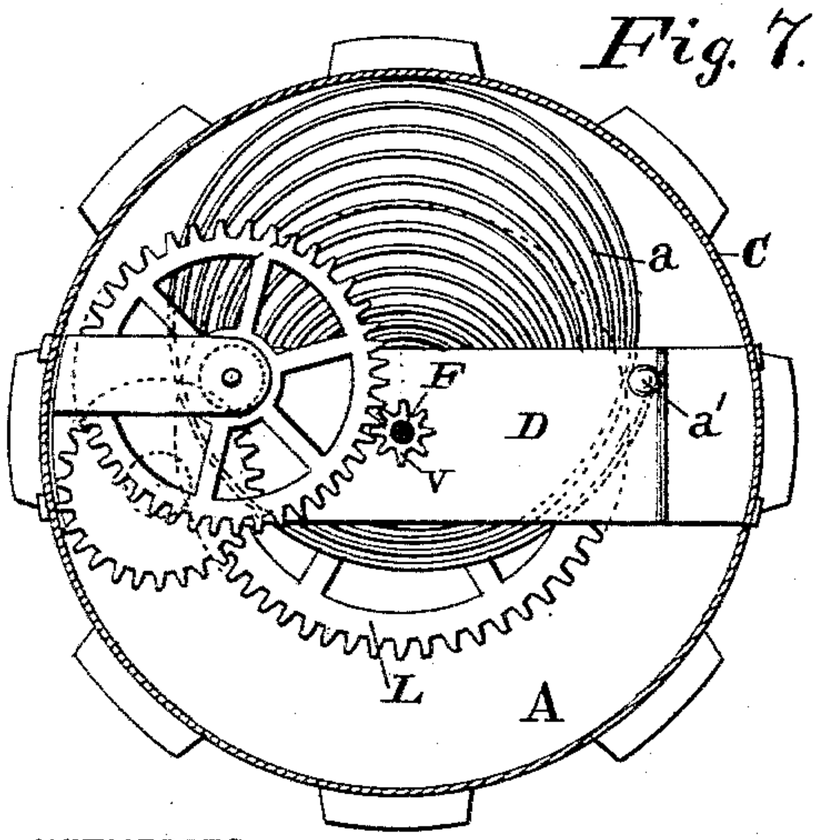
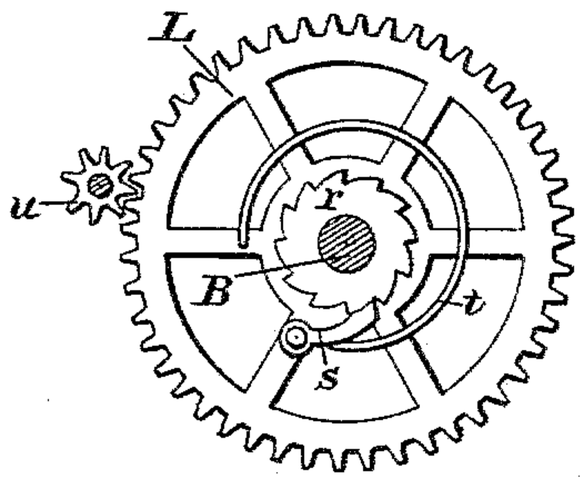


Fig. 8.



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FLY-FAN.

SPECIFICATION forming part of Letters Patent No. 321,352, dated June 30, 1885.

Application filed August 15, 1884. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM R. FOWLER, a citizen of the United States, residing at Philadelphia, in the State of Pennsylvania, have invented certain new and useful Improvements in Automatic Fans, of which the following is a specification.

My invention relates to improvements in automatic fans for driving flies and for other purposes, driven by clock-work motors, and has for its object to simplify the construction and cheapen the cost of these fans, and to dispense with a winding-key.

The construction of the improved fly-expelling fan, whereby the desired result is accomplished, will be described in connection with the accompanying drawings, which illustrate what is deemed the best means of carrying the invention into effect.

Figure 1 is a side view of the fan. Fig. 2 is a horizontal section of the case on the line *x x* of Fig. 1, and *z z*, Fig. 6, showing frame D broken away. Fig. 3 is a horizontal section on line *y y* of Fig. 1. Fig. 4 is a view of the coupling-plates which connect the fan-staff. Fig. 5 is a view of the fan-staff, showing normal curved position. Fig. 6 is a vertical section of the case and base, and a side view of the working parts. Fig. 7 is a horizontal section of the case on the line *x x*, Fig. 6, showing the working parts. Fig. 8 is an inverted or bottom view of the large wheel and ratchet on line *y y*, Fig. 7.

The letter A designates the base which supports the fan. The upright shaft B of the driving-wheel of the clock-work motor is rigidly secured to the base at its center by a pin, B′, or other suitable means, below the base.

The letter C designates a case supported above the base and inclosing the motor, the frame ends a^2 of which are secured to the interior sides of the case. When the base A is resting on a table, it and the shaft B, which is fixed to it, remain stationary, while the case C and the motor or clock-work mechanism, and frame D, which sustains it, all revolve slowly around the said fixed shaft.

The clock-work mechanism may be of any well-known construction, and is driven by a coiled spring, *a*, one end of which is attached to the fixed upright shaft B, and the other end to the frame of the clock-work motor at *a′*.

To the shaft B is fixed a ratchet-wheel, *r*, and the large wheel L, adjoining the ratchet-wheel, turns freely about the shaft. This wheel carries a pawl, *s*, which is kept in engagement with the ratchet-wheel by means of a spring, *t*. The large wheel L gears with a pinion, *u*, and through a train of gearing connects with a pinion, V, on the vertical spindle F. The pawl *s* and ratchet *r* permit of the parts being turned one way to wind up the spring *a*, but by preventing them from being turned the opposite way insures that the power of the spring will be exerted on the clock-work mechanism to drive the spindle F. By this construction and arrangement of parts the movement or clock-work motor may be wound up by turning the case C on the base A, or by holding the case in one hand and turning the base with the other. Thus a winding-key is unnecessary.

One or more standards, E, are secured to the case and project above it, and have at their top a bearing, *b*, to support a vertical spindle, F, which transmits motion from the motor to the fans. The lower end of this vertical spindle sets in the top of the fixed shaft B, which serves as a step, and projects up through a hole, *b′*, in the center of the top of the case. The fan-staff spindle and fans will revolve at the usual operative speed, and from the fact that one end of the spring *a* is attached to the fixed shaft B and the other end to the motor-frame, which is secured to the case, the inclosing-case and motor will also revolve in the same direction, though very much slower than the spindle and fans.

A fan-staff, G, is detachably connected to the upper end of the vertical spindle F. A coupling to connect these parts consists of one plate, *c*, having two parallel grooves, *c′*, and another plate, *d*, having parallel edges *d′*, adapted to slide in the said grooves. One of these plates is rigidly attached to the upper end of the vertical spindle F, and the other to the

lower end of the fan-staff G. By this arrangement the fans and the fan-staff may be readily detached from the spindle by a lateral movement.

The fan-staff G consists of two wires or strips joined at the top, and the two lower ends connected to the coupling-plate *d*. These two strips are curved normally outward or away from each other, as shown in Fig. 6, and are thereby adapted to exert a pressure or friction on the movable sleeve I, which will retain it at any elevation whereat it may be set without the use of a set-screw or other binding device.

The fans H each have an arm, *e*, provided with a bifurcated curved end, *f*, and the sleeve I fits on the staff, and is adapted to move thereon up and down. The bifurcated arm ends are jointed at *g* to the sleeve; thereby the arms and fans may be extended horizontally, or may be folded vertically against the staff.

A ring or loop, *h*, fits loosely around the fan-staff, and is prevented from coming off by the coupling-plate. This ring is used to slide over the arms *e* of the fans when they are folded against the fan-staff G.

An automatic stop device, *n*, is attached to the vertical spindle F. A hole in the spindle is occupied loosely by the stop-arm *n*, which has at one end a weight, *p*, and at the other end an eye, loop, or bend, *q*, to keep it from coming out of the hole. When the spindle is revolving slow—*i. e.*, at the usual operative speed—the stop-arm will have position halfway through the hole in the spindle, and will so remain; but when the fan-staff G and fans H are removed the spindle will start to revolve faster, and thereupon, by the action of centrifugal force, the weighted end of the stop-arm *n* will project—that is, the arm will slide endwise in the hole, and the weighted end will project so far from the spindle as to come in contact with the standard E, and so stop the rotation. The device therefore acts automatically whenever the speed is increased. It may be set by the hand whenever it is desired that the fan shall cease operating.

Having described my invention, I claim and desire to secure by Letters Patent of the United States—

1. In an automatic fan, the combination of a base, A, having an upright shaft, B, fixed to its center, a case, C, having a hole in the center of its top, a fan-staff spindle, P, provided with a pinion, V, and having its lower end set to turn freely in the top of the fixed shaft and projecting up through the said hole in the case, and a clock-work motor, inclosed by the case, secured thereto and connected with the pinion on the fan-staff spindle, whereby the fan-staff and inclosing-case both revolve independently while the fans are moving, as set forth.

2. An automatic fan having in combination a motor, a spindle to transmit motion to the fan-staff, a fan-staff, G, having two spring wires or strips curved away from each other, and a fan-supporting sleeve, I, movable on the said two curved strips, whereby the pressure of the curved strips on the sleeve will retain the fans at any elevation, as set forth.

3. An automatic fan having in combination a spindle, F, to transmit motion to the fans, a fan-staff, and a coupling for said parts consisting of two plates, *c d*, secured to the spindle and staff, one having two parallel grooves, *c'*, into which the other slides by a lateral movement with respect to the spindle and staff, as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM R. FOWLER.

Witnesses:
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FRANK H. MASSEY.