R. C. EVANS.

Fly-Fan.

No. 211,653. Patented Jan. 28, 1879.

FIG. 1.

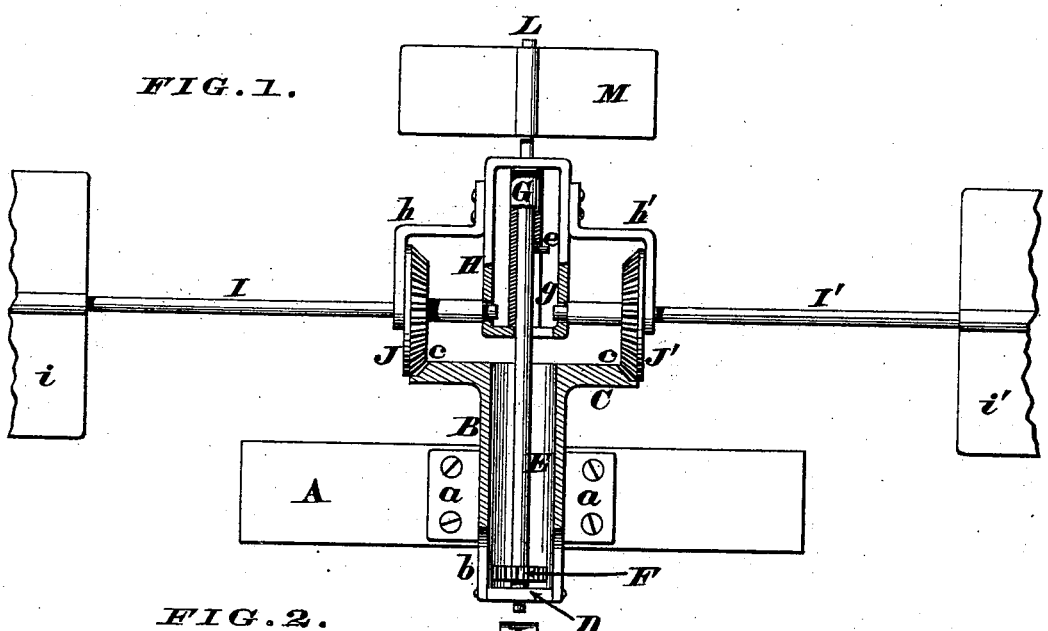


FIG. 2.

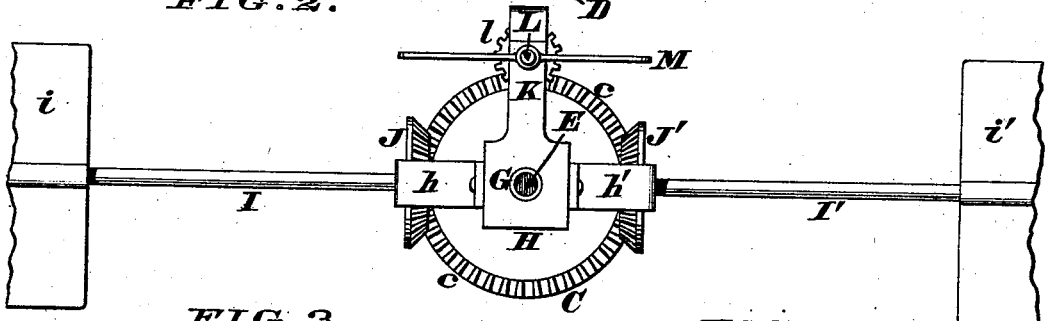


FIG. 3.

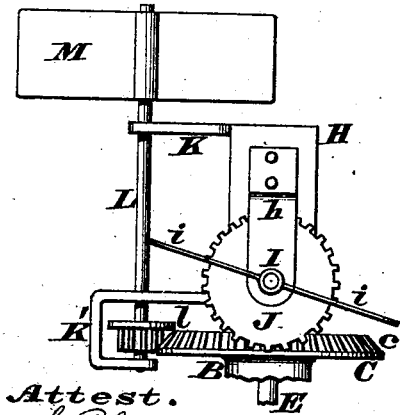
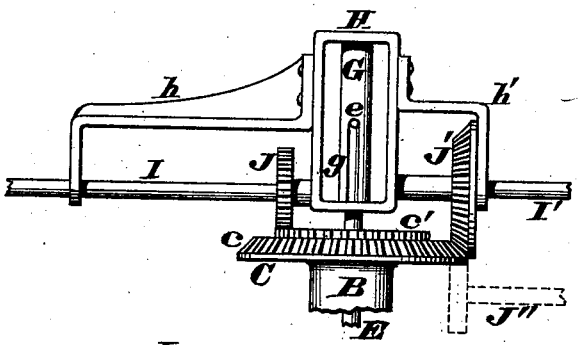


FIG. 4.



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UNITED STATES PATENT OFFICE.

REES C. EVANS, OF COVINGTON, KENTUCKY, ASSIGNOR TO IVOR J. EVANS, OF SAME PLACE.

IMPROVEMENT IN FLY-FANS.

Specification forming part of Letters Patent No. **211,653**, dated January 28, 1879; application filed October 26, 1878.

To all whom it may concern:

Be it known that I, REES C. EVANS, of Covington, Kenton county, Kentucky, have invented certain new and useful Improvements in Fly-Fans, of which the following is a specification:

My invention consists, essentially, of a stationary wheel applied to a tubular or hollow shaft, and having either radial or bevel or contrate teeth, with which teeth are engaged the pinions that rotate the fans or blades or other appliances that agitate the air. This fixed tube is traversed by the driving-shaft of the implement, which shaft may be set in motion by a train of clock-work or by any other instrumentality. Furthermore, this driving-shaft carries a light frame, within which latter is journaled the fly-fan shafts, whose operating-pinions may engage with the stationary wheel either at right angles to the same or in the same plane as said wheel, as hereinafter more fully described.

In the annexed drawings, Figure 1 is a front elevation of the more complete form of my apparatus, the stationary wheel and tubular shaft and a portion of the rotating frame being shown in section. Fig. 2 is a plan of the same. Fig. 3 is a side elevation of the upper part of the apparatus; and Fig. 4 represents a modification of my invention.

A represents a portion of the frame or other support of the apparatus, and *a a* are lugs or ears, wherewith the tube or hollow shaft B is secured to said frame, so as to prevent rotation of said tube. Cast with this tube, or otherwise attached to the same, is the stationary wheel C, previously alluded to, said wheel being preferably provided with bevel-teeth *c*, whose duty will presently appear. Secured to the lower end of tube B, or to a fixture of the main frame A, is a bar, D, which serves as a step or bearing for the shaft E, that occupies an axial position within said tube B. Tube B is cut away at *b* to permit a wheel to engage with the pinion F, secured to shaft E, which wheel may be driven with a train of clock-work or any other suitable motor; or pinion F may be dispensed with, and shaft E may be rotated in any other convenient manner. Projecting laterally from this shaft is a pin or spline, *e*, adapted to traverse the longitudinal slot *g* of a sleeve, G, which sleeve has attached to it a light frame, H, which frame, in connection with its hangers *h h'*, affords journal-bearings for two oppositely-projecting shafts, I I', whose outer ends carry fans *i i'*, of any appropriate size and shape. Keyed to these shafts are bevel-pinions J J', that engage with teeth *c* of stationary wheel C.

If preferred, frame H may have extensions K K', to afford bearings for a counter-shaft, L, having at its lower end a pinion, *l*, capable of engaging with the teeth of the stationary wheel. The upper end of this counter-shaft carries a fan, M.

As wheel C is stationary, it is evident the rotation of shaft E imparts a corresponding motion to frame H *h h'*, and, consequently, pinions J J' are revolved, and at the same time they are compelled to describe a circuit around said fixed wheel C. As a result of these combined movements, fans *i i'* have a horizontal and vertical rotation imparted to them, thereby producing a thorough agitation of the air with a moderate expenditure of power. The fan M, however, has no vertical motion, but rotates slowly in a horizontal plane.

As the leading feature of my invention consists of a stationary wheel, C, with one or more wheels or pinions arranged to gear with the same in such a manner as to insure said pinions rotating axially, and at the same time describing an orbit around said fixed wheel, I reserve the right of modifying the details of construction—as, for example, the application of contrate teeth *c'* to said wheel C, as shown in Fig. 4; or the contrate teeth may project from the under side of said wheel, and a pinion may engage with such teeth, as seen at J''.

Furthermore, a single shaft and fan may be used instead of the duplex arrangement seen in the drawings.

Finally, I do not propose to limit the invention to fly-fans; but the right is reserved of using the apparatus for any other purpose.

I claim as my invention—

1. The combination of tubular support B,

stationary toothed wheel C *c*, driving-shaft E, frame H *h*, fan-shaft I, and wheel or pinion J, which pinion is adapted to rotate axially as it describes an orbit around said stationary wheel C, substantially as herein set forth.

2. The combination of tubular support B, stationary toothed wheel C *c*, driving-shaft E, frame H *h h'*, fan-shafts I I', and pinions J J', which pinions are adapted to revolve at uniform or at different velocities as they describe their respective orbits around said stationary wheel C *c*, substantially as herein set forth.

3. An improved fly-fan consisting of the tubular support B, stationary toothed wheel C *c*, driving-shaft E, revolving frame H *h h'* K K', fan-shafts I *i* I' *i'*, pinions J J' *l*, countershaft L, and fan M, substantially as herein described, and for the purpose set forth.

In testimony of which invention I hereunto set my hand.

REES C. EVANS.

Witnesses:

JAMES H. LAYMAN,

GEORGE H. KOLKER.