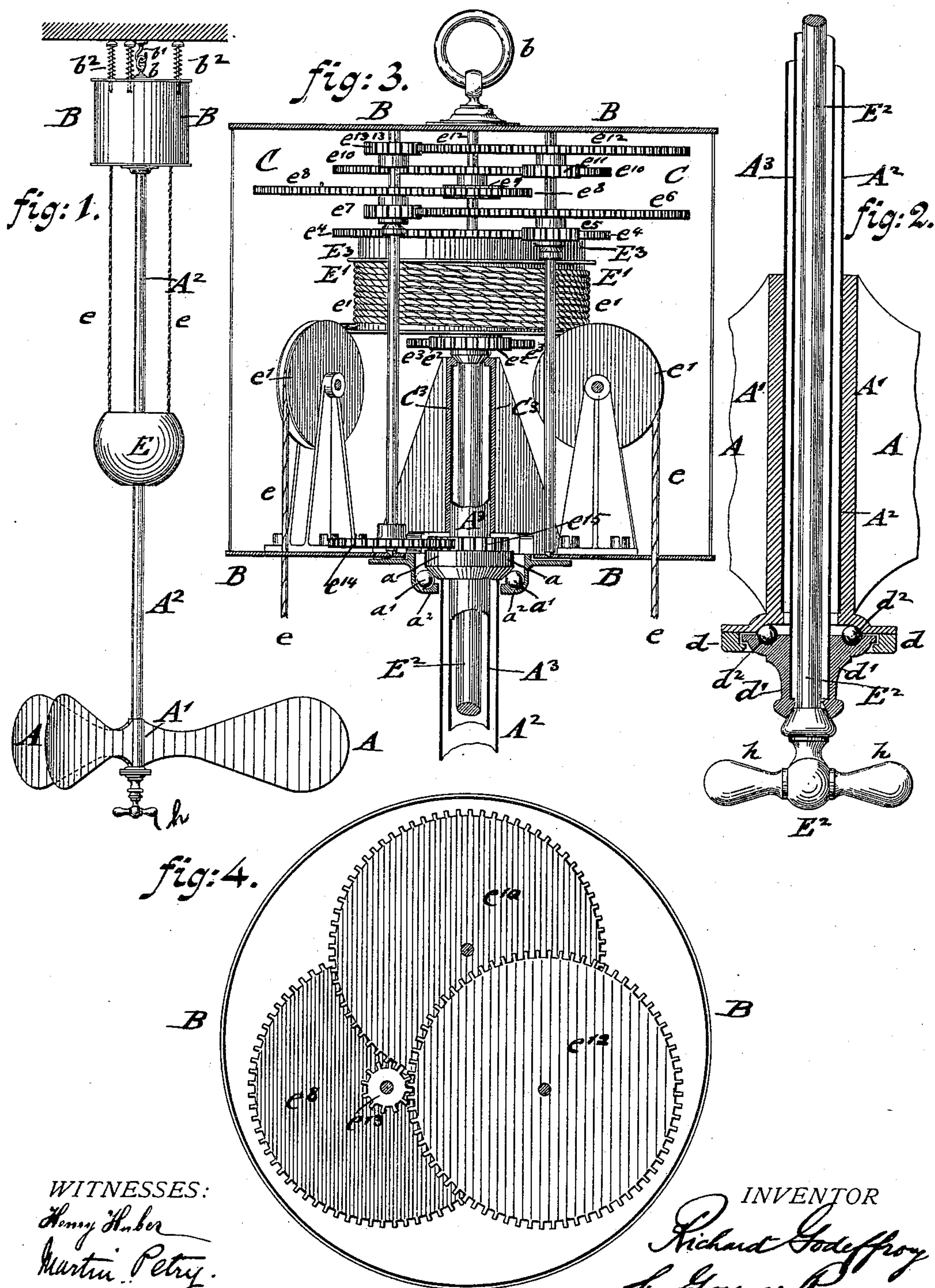


(No Model.)

R. GODEFFROY.
ROTARY FAN.

No. 450,148.

Patented Apr. 14, 1891.



WITNESSES:
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ROTARY FAN.

SPECIFICATION forming part of Letters Patent No. 450,148, dated April 14, 1891.

Application filed May 10, 1890. Serial No. 351,273. (No model.)

To all whom it may concern:

Be it known that I, RICHARD GODEFFROY, of Philadelphia, in the county of Philadelphia and State of Pennsylvania, a citizen of the United States, have invented certain new and useful Improvements in Rotary Fans, of which the following is a specification.

This invention relates to certain improvements on the rotary fan for which Letters Patent No. 395,620 were granted to me on January 1, 1889, said improvements being designed with a view to simplify the construction, so that the same is better adapted to the purpose for which it is designed.

In the accompanying drawings, Figure 1 represents a side elevation of my improved rotary fan. Fig. 2 is a vertical central section of the fan-hub, tubular fan-shaft, interior guide-tube, and winding-rod drawn on a larger scale. Fig. 3 is a side elevation, partly in section, of the transmitting-train of gear-wheels by which rotary motion is imparted to the fan-shaft, also drawn on a larger scale; and Fig. 4 is a plan of Fig. 3 with the top plate of the casing removed.

Similar letters of reference indicate corresponding parts.

Referring to the drawings, A represents a fan, the hub A' of which is applied to a hollow shaft A², that is provided at its upper end with a collar a, which rests on anti-friction rollers a', located in an annularly-grooved bearing a², attached to the bottom of the casing B. The casing B incloses a train of gear-wheels C, by which motion is transmitted from a prime motor to the fan-shaft A². The casing B is suspended by a top ring b from a hook b', that is attached to one of the beams of the ceiling or to any other suitable support. In holes of the top plate of the casing B are guided three rods b², the rounded-off heads of which are pressed against the ceiling by means of spiral springs that are interposed between the top plate and the heads, as shown in Fig. 1, so as to keep the entire fan mechanism in vertical position and prevent it from swinging while the fan is in motion. The train of gear-wheels C is driven by a weight E, which is suspended on wire or other cords e, that run over pulleys e', said cords being wound up on a drum E' by turning a rod or spindle E², which passes down

and through a fixed guide-tube A³ at the interior of the hollow fan-shaft A² to the outside of the same. The upper end of the winding-rod E² is provided with a boss 20. The lower end of the winding-rod E² is provided with a handle h, by which the rod E² is turned on its axis, the motion of the rod E² being transmitted to the drum E' by means of a pinion e² at the upper end of the rod E² and a cog-wheel e³, that is attached to the axle of the winding-drum E'. The upper cylindrical part E³ of the winding-drum E' incloses a pawl-and-ratchet mechanism (not shown in the drawings) which permits the turning of the drum E' and the winding up of the suspension-cords e on the same independently of the transmitting-train of gear-wheels C, but which imparts the movement of the drum to said train of gear-wheels when the driving-weight sinks, so as to turn the drum in a direction opposite to the direction of its motion when winding up the same. The lower end of the fan-shaft A² is supported by a flanged circumferential collar d on a ring-bracket d', attached to the lower end of the interior guide-tube A³. The friction between the fan-shaft A and collar d' is taken up by anti-friction rollers d², which move in an annular top groove of the ring-bracket d', as shown in Fig. 2. The guide-tube A³ passes upward into the casing B and is secured at its upper end to a fixed sleeve C³, which is attached by ribs C^x, having legs to the bottom plate of the casing B. The top and bottom plates of the casing B are provided with the required number of journal-bearings for the shafts of the different gear-wheels of the train of gear-wheels C, by which rotary motion is imparted to the fan-shaft A².

The transmitting-train of gear-wheels is shown in Figs. 3 and 4, and consists of a gear-wheel e⁴ at the upper end of the drum E', a pinion e⁵, meshing therewith, a gear-wheel e⁶ on the spindle of the pinion e⁵, a pinion e⁷, meshing with a gear-wheel e⁶, a gear-wheel e⁸ on the spindle of the gear-wheel e⁷, a pinion e⁹, meshing with the gear-wheel e⁸, a gear-wheel e¹⁰ on the spindle of the pinion e⁹, a pinion e¹¹, meshing with the gear-wheel e¹⁰, a gear-wheel e¹² on the spindle of the pinion e¹¹ and meshing with a pinion e¹³, and a gear-wheel e¹⁴ at the lower end of the spindle of the pinion e¹³, which gear-wheel meshes with a pinion e¹⁵ at

the upper end of the tubular fan-shaft A. The drum E' and the gear-wheel e^4 , the gear-wheel e^5 , connected with the pinion e^6 , and the gear-wheel e^7 , connected with the pinion e^8 , turn loosely on their respective spindles, while the gear-wheels e^9 and e^{10} , e^{11} , e^{12} , e^{13} , and e^{14} are fixed to their respective spindles. The pinion e^{15} is attached to the collar a at the upper end of the fan-shaft A².

10 In rooms with low ceilings, where the weight would not have sufficient fall to allow the fan to run any convenient length of time, the weight E and cords e , as well as the pulleys e' , may be omitted, and in place of the same 15 the drum E' be operated by a spiral spring arranged at the interior of the same in the same manner as in the well-known spring-driven clock-trains.

Having thus described my invention, I 20 claim as new and desire to secure by Letters Patent—

1. The combination of a casing, a motor therein, a winding-drum driven by said motor, a fixed sleeve within said casing, provided at 25 its upper end with a bearing and at its lower end with legs attached to the bottom plate of said casing, an exterior bearing secured to said bottom plate opposite said fixed sleeve, a

tubular fan-shaft provided at its upper end with a collar supported by said exterior bearing, a fan attached to said fan-shaft, a train of gearing between said drum and fan-shaft, a fixed guide-tube within said fan-shaft, extended upward beyond said shaft into said fixed sleeve and attached thereto, a winding-rod extending through said fixed tube and 35 through said fixed sleeve and provided at its upper end with a boss which engages the bearing of said fixed sleeve, gearing between the winding-rod and drum, and a handle at the 40 lower end of said winding-rod for actuating it, substantially as described.

2. The combination, with a fixed suspension-hook, of the supporting-casing of a rotary fan, said casing having a suspension eye or ring 45 and spring-actuated steadying-rods having enlarged heads or knobs, substantially as set forth.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses. 50

RICHARD GODEFFROY.

Witnesses:

JOHN M. NOBRÉ,
HENRY WALTER TUCKER.