

No. 610,851.

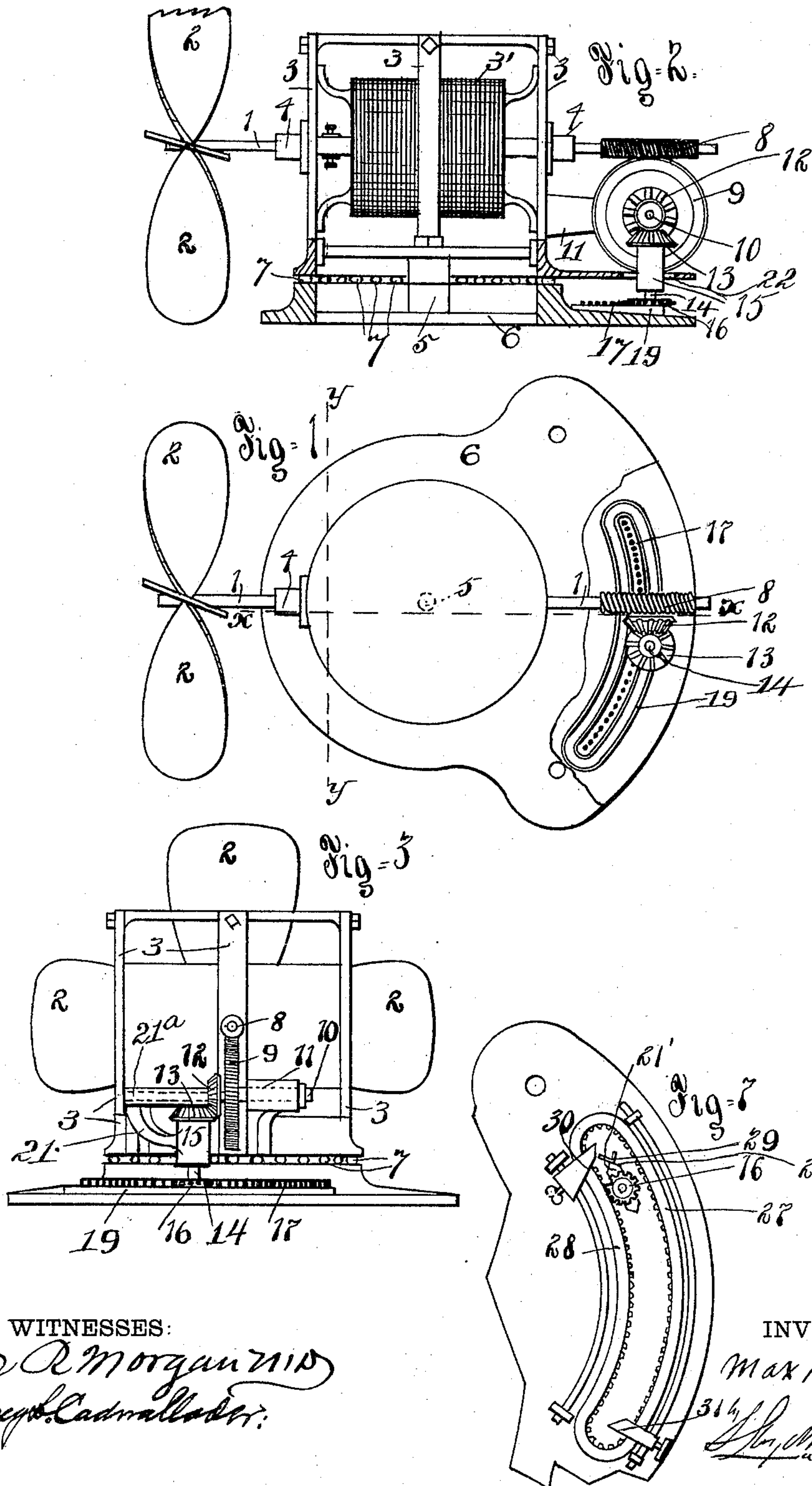
Patented Sept. 13, 1898.

M. ROLLE.
VENTILATING FAN.

(Application filed June 27, 1896.)

(No Model.)

2 Sheets—Sheet 1.



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2 Sheets—Sheet 2.

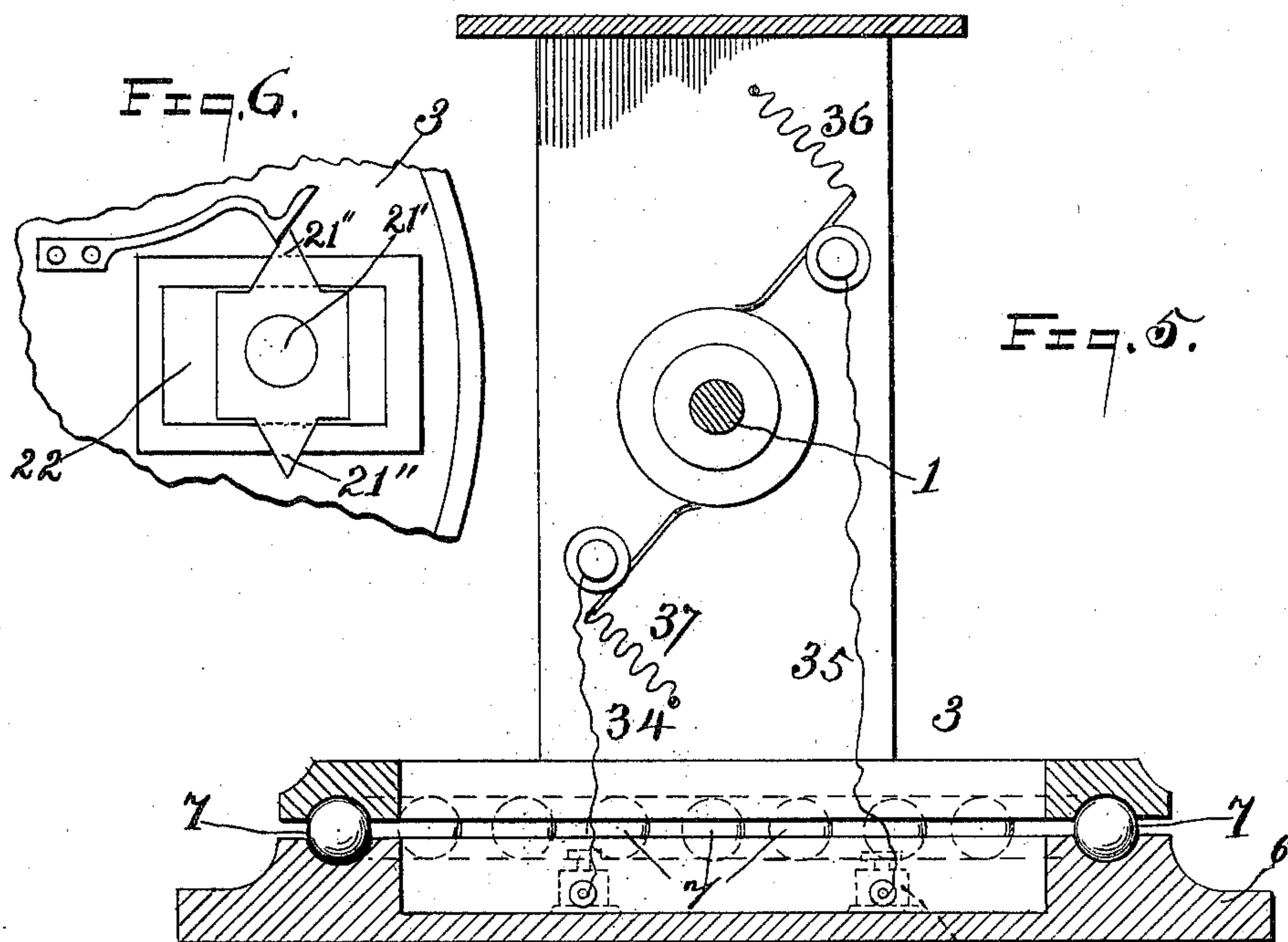
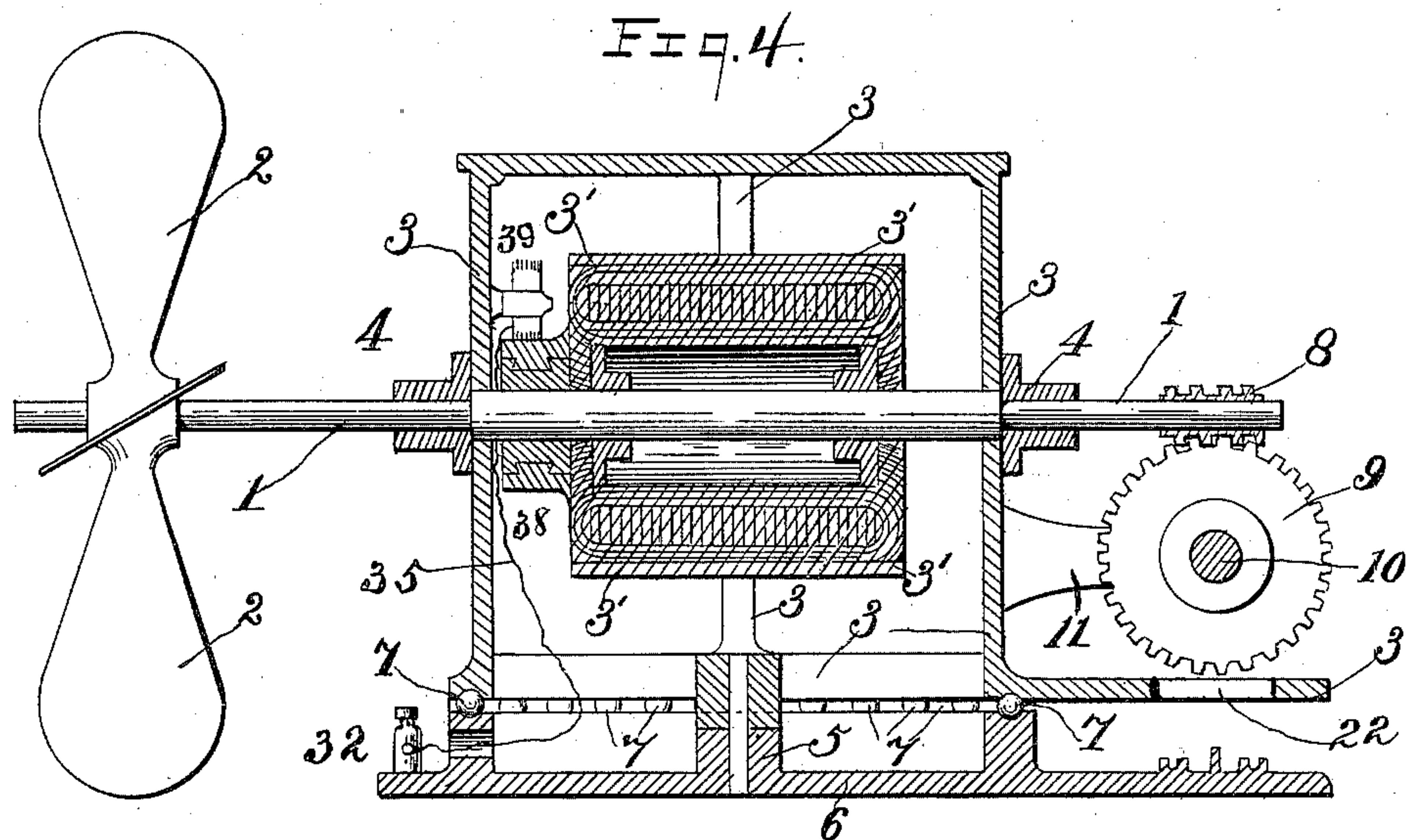
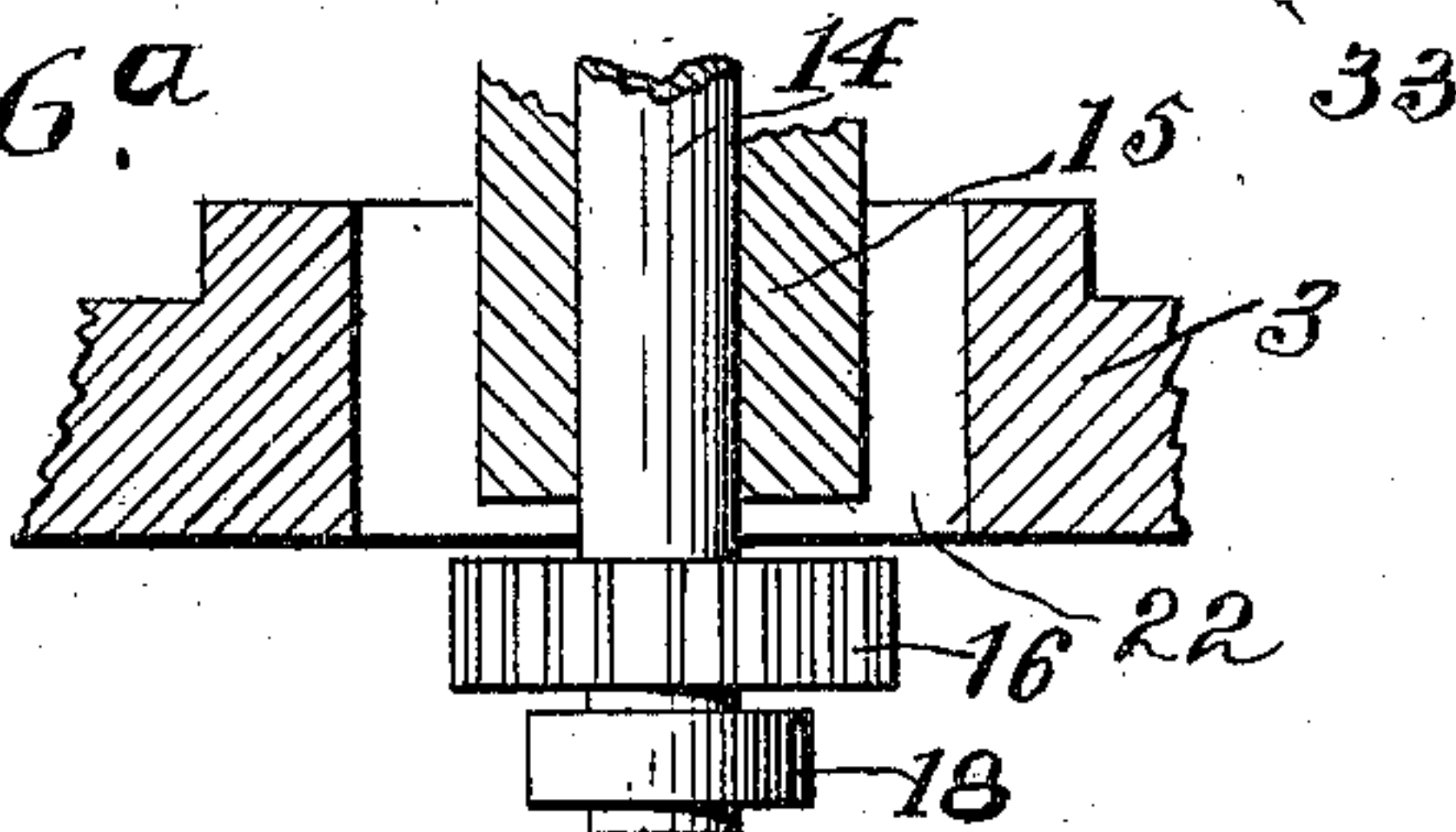


Fig. 6a.



WITNESSES:

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UNITED STATES PATENT OFFICE.

MAX ROLLE, OF PHILADELPHIA, PENNSYLVANIA.

VENTILATING-FAN.

SPECIFICATION forming part of Letters Patent No. 610,851, dated September 13, 1898.

Application filed June 27, 1896. Serial No. 597,140. (No model.)

To all whom it may concern:

Be it known that I, MAX ROLLE, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Ventilating-Fans; and I do hereby declare the following to be a sufficiently full, clear, and exact description thereof to enable others skilled in the art to make and use the said invention.

This invention relates to fans for ventilating and agitating the air of apartments, and has for its object the automatic changing of the direction of the current of air propelled by the fan; and to this end it consists of the hereinafter-described mechanism deriving motion from the rotating fan-arbor, producing a slow oscillating or reciprocating motion of the fan upon a vertical pivot, so as to change and vary the direction of the fan-axis and air-current.

The construction and operation of this invention are hereinafter fully described, and shown in the accompanying drawings, in which—

Figure 1 is a plan view of a fan with the invention applied thereto. A part of the frame is shown as broken away, so as to expose the means for imparting the reciprocating motion. Fig. 2 is an elevation thereof with the lower portion in section. Fig. 3 is an end elevation. Fig. 4 is an enlarged section in the plane indicated by the dotted line *y y* in Fig. 1. Fig. 5 is an enlarged section in the plane indicated by the dotted lines *xx* on Fig. 1. Figs. 6 and 6^a are enlarged detached details of the reciprocating mechanism, and Fig. 7 is a modification of parts for adjusting and adjustably varying the extent of oscillation.

Referring to Figs. 1, 2, 3, and 4 of the drawings, 1 represents the revolving arbor of the fan; 2, the vanes of the fan; 3, the frame supporting the arbor-bearings 4 and the field-magnets 3' of the motor.

5 is a pivot upon which the frame 3 oscillates and by which it is attached to the base 6.

7 are rollers or balls interposed between the frame 3 and the base 6 to avoid friction between these parts.

On the arbor 1 is placed an endless screw 8, turning with it and engaging in a worm-

wheel 9, supported by an arbor 10, having a bearing 11 attached to the frame 3. A bevel-toothed wheel 12 is attached to and turns with the worm-wheel 9 and engages the teeth of a corresponding bevel-wheel 13, secured on and turning a vertical arbor 14. Near the lower end of the arbor 14 is secured a pinion 16, turning with it and fitted to engage the teeth or pins of a curved rack-segment 17, formed like a mangle-rack and fastened to the base 6. A roller 18 is fitted to turn on the lower end of the arbor 14 and bears against the inner surface of the guiding-rim 19, also secured to the base 6, and holds the pinion 16 in engagement with the teeth of the segment 17. A box or bearing-sleeve 15, supported by an arm 21 from the frame 3, is fitted on the arbor 14 above the pinion 16. Said arm depends from a bearing-sleeve 21^a, carried by the frame 3, and the arbor turns freely in the sleeve 15, and said sleeve 15 slides in a slot 22 in the frame 3, permitting the pinion 16 and arbor 14 to swing on the arbor 10 as the pinion passes from one side to the other of the rack-segment 17 to reverse the motion of the frame 3 and connected parts.

In the modification shown in Fig. 7 two curved racks 27 and 28 are used, into which the pinion 16 engages alternately and is held in engagement by a spring 29, bearing against a double inclined surface 21'' on the block 21'. Inclined tripping-blocks 30 and 31, attached adjustably to the base 6, serve to move the block 21' sidewise and cause the pinion to engage the opposite rack, and by adjusting the blocks in position on the base 6 the length of the arcs through which the frame 3 and the fan vibrate can be varied and controlled. The electric current is conveyed from binding-posts 32 and 33, through conducting-wires 34 and 35 and springs 36 and 37, to a commutator 38, and thence to the armature 39 and to the helices of the field-magnets 3'.

The operation of the machine is as follows: The arbor 1 is revolved and rotates the endless screw 8, which operates the gear-wheels and pinion 16 in mesh with one side of the rack-segment 17 and revolves the frame 3 upon the pivot 5 until the pinion 16 reaches the end of the rack-segment. The movement of the frame 3 is then reversed by the spring-controlled block 21' engaging one of the trip-

ping-blocks, which moves the said pinion to the other side of the rack-segment. This operation is repeated as long as the arbor 1 is rotated.

5 Having thus described my invention, what I claim is—

1. The combination, with the frame, the revoluble fan-arbor journaled in the frame, means for revolving the arbor, an endless
10 screw on the arbor, a worm-wheel carried by the frame and meshing with said screw, and a beveled gear on said wheel, of a base pivotally supporting said frame, a vertical arbor, a pinion on each end of the vertical arbor,
15 and a rack on said base engaged by one of said pinions, the other of said pinions meshing with the said beveled gear, to impart piv-

otal motion to the frame during the revolution of the fan-arbor, as set forth.

2. The combination with the frame, the 20 revoluble fan-arbor, means for revolving the arbor, and an endless screw on the arbor, of a base pivotally supporting said frame, a rack on the base, the tripping-blocks adjustably attached to the base, means connecting said 25 screw to the rack to impart pivotal motion to the said frame, and a spring-controlled block to reverse said pivotal frame motion, as set forth.

MAX ROLLE.

Witnesses:

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