(No Model.) 2 Sheets—Sheet 1.

J. M. ORFORD.

POWER TRANSLATOR FOR DRIVING FANS.

No. 389,665. Patented Sept. 18, 1888.

Fig. 1.

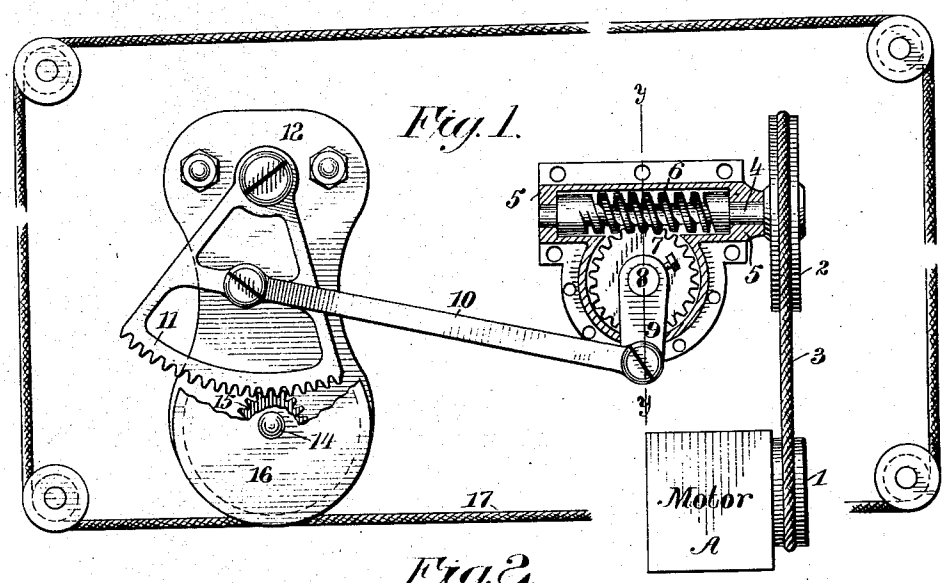


Fig. 2.

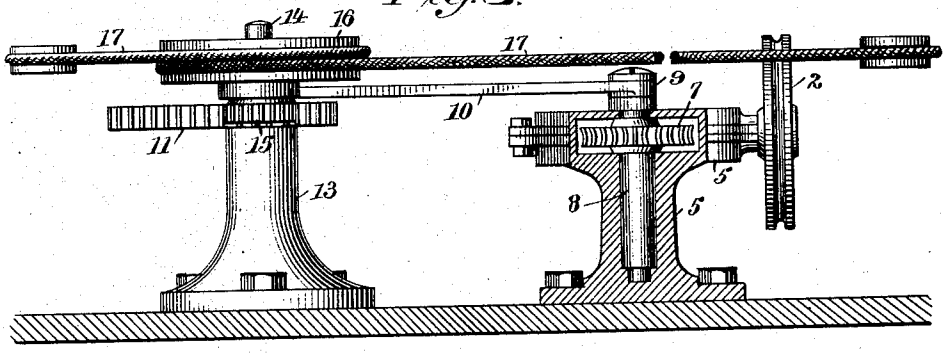


Fig. 3.

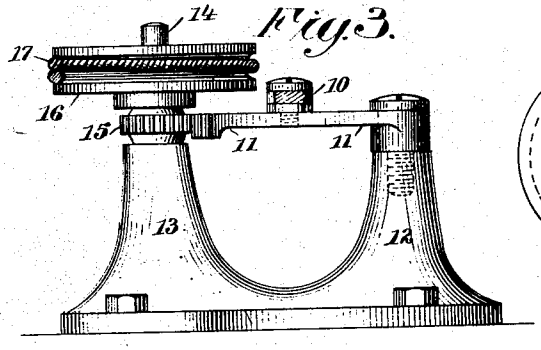
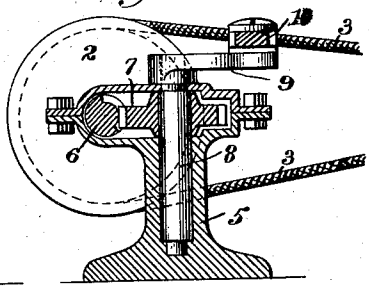


Fig. 4.



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(No Model.) 2 Sheets—Sheet 2.

J. M. ORFORD.

POWER TRANSLATOR FOR DRIVING FANS.

No. 389,665. Patented Sept. 18, 1888.

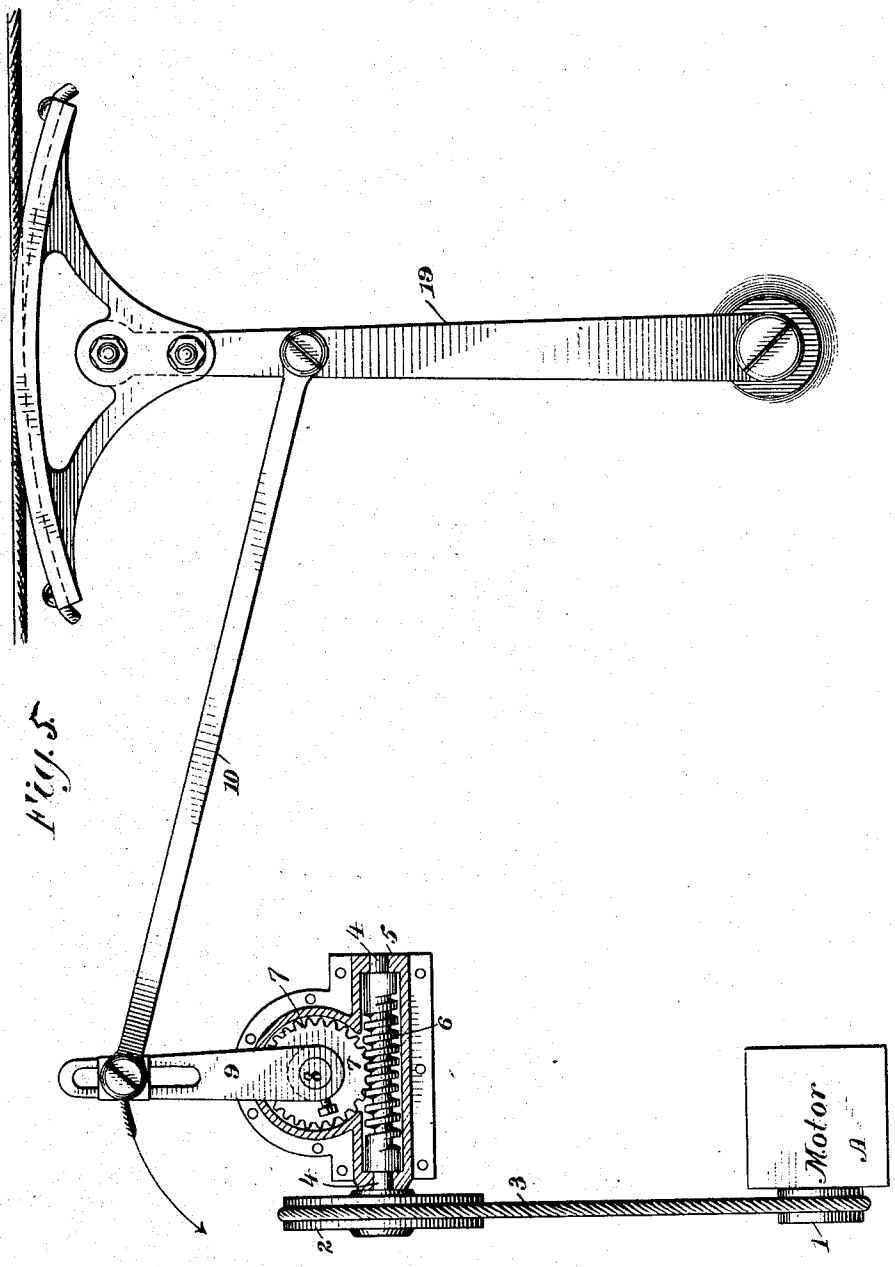


Fig. 5.

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UNITED STATES PATENT OFFICE.

JOHN M. ORFORD, OF BRIDGEPORT, CONNECTICUT.

POWER-TRANSLATOR FOR DRIVING FANS.

SPECIFICATION forming part of Letters Patent No. 389,665, dated September 18, 1888.

Application filed April 17, 1888. Serial No. 270,913. (No model.)

To all whom it may concern:

Be it known that I, JOHN M. ORFORD, a citizen of the United States, residing at Bridgeport, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Power-Translators for Driving Fans; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to certain new and useful improvements in power-translators, and has for its object to provide a simple and compact device whereby an exceedingly rapid rotary motion may be converted into a slow and regular reciprocatory movement.

While my invention may be applied to other uses I have designed it with particular reference to the driving from a water or electric motor of swinging ventilating and cooling fans of the type set forth in the Letters Patent No. 372,174, granted to Jesse Sands the 25th day of October, 1887. It is my purpose to translate the rapid rotary movement of an electric motor driven at, say, two thousand revolutions per minute to the sixty movements per minute at which said fans are most advantageously driven.

With these ends in view my invention consists in the details of construction and combination of elements, which will hereinafter be fully and in detail explained, and then recited in the claims.

In order that those skilled in the art to which my invention appertains may fully understand my improvement, I will describe the same in detail, reference being had to the accompanying drawings, which form a part of this specification, and in which—

Figure 1 is a plan view of my device with the plate which covers the worm and worm-wheel removed; Fig. 2, a side elevation partially in section; Fig. 3, a detail side elevation; Fig. 4, a detail vertical section taken at the line *y y* of Fig. 1, and looking in the direction indicated by the arrow; Fig. 5, a side elevation of another modification of the device shown in the preceding figures.

Like reference-numbers indicate the same parts in all the figures of the drawings.

A is the motor, which may be of any usual form and driven by electricity, water, or other known propulsive force. Its driving-pulley 1 is belted to a pulley, 2, by a belt, 3.

4 is a shaft upon which the pulley 2 is mounted. It is supported in bearings at its ends in a standard, 5. At its center this shaft carries a worm, 6, which meshes with a worm-wheel, 7, on a shaft, 8, journaled in the standard.

9 is a crank-arm carried upon the shaft 8 above the spur-gear. It is connected by a pitman, 10, to a geared segment, 11, whose upper end is pivoted to a standard, 12. In a third standard, as 13, is journaled a shaft, 14, upon which are firmly mounted a spur-gear, 15, and a pulley, 16. The teeth of the segment mesh with the spur-gear just mentioned.

17 is a cord or line which is passed around the pulley 16 and which thereafter extends outward in both directions and actuates the fans which are hung from the ceiling, and are connected to said cord in the manner illustrated in the patent to Sands, hereinbefore referred to.

I have not deemed it necessary to show the fans, since their method of attachment to the cord forms no part of my present invention.

The operation of my invention is as follows: The driving-belt from the highly-speeded motor carries the pulley on the worm-shaft at a somewhat lower rate than said motor by reason of the difference in size of the pulleys. This diminished speed is not essential, but is convenient. The rotation of the worm-shaft through the driven pulley imparts movement to the worm-wheel with which it meshes either at the rate of one tooth to one revolution of the worm or at such other rate as may be determined by the pitch of the worm. The worm-wheel and crank-arm being secured on the same shaft move together, and so the rotation of the said crank-arm is equal to that of the worm-wheel. The movement of the crank is translated into reciprocatory movement in the pivoted segment 11 through the pitman 10, which is pivoted to both crank and segment. The toothed segment meshes with the gear 15, which, with the pulley 16, is fast on the shaft 14 and imparts thereto rotary reciprocation as it is carried back and forth by the segment. The

line or cord to which are attached the fans is secured about the pulley, as by a turn around the latter, and the movement of said pulley received from the segment, as aforesaid, alternately pulls the cord in each direction.

In Fig. 5 I have shown a pivoted sweep-arm, 19, to which the movement of the crank is transmitted by the pitman. The cord is attached to the end of the sweep-arm, and the crank is shown as slotted, so that the movement of the arm may be varied, thereby changing the arc through which the fans are caused to swing.

I claim—

1. The combination of the driven worm-shaft, the worm-wheel meshing with and actuated by said worm, the crank on the worm-wheel shaft, the pitman connected to the crank, the pivoted segment to which the other end of the pitman is pivotally secured, and the gear and pulley driven from the racked edge of said segment and the rope, all arranged as described, and adapted to be operated by a motor.

2. The combination of the driven shaft carrying the worm, the worm-wheel meshing with and driven by said worm, the crank secured on the worm-wheel shaft, the pitman actuated by said crank, and the segment, and means for the actuation of the fan-driving cord therefrom, substantially as and for the purpose set forth.

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

JOHN M. ORFORD.

Witnesses:

S. H. HUBBARD,

WM. J. TANNER.