

No. 665,929.

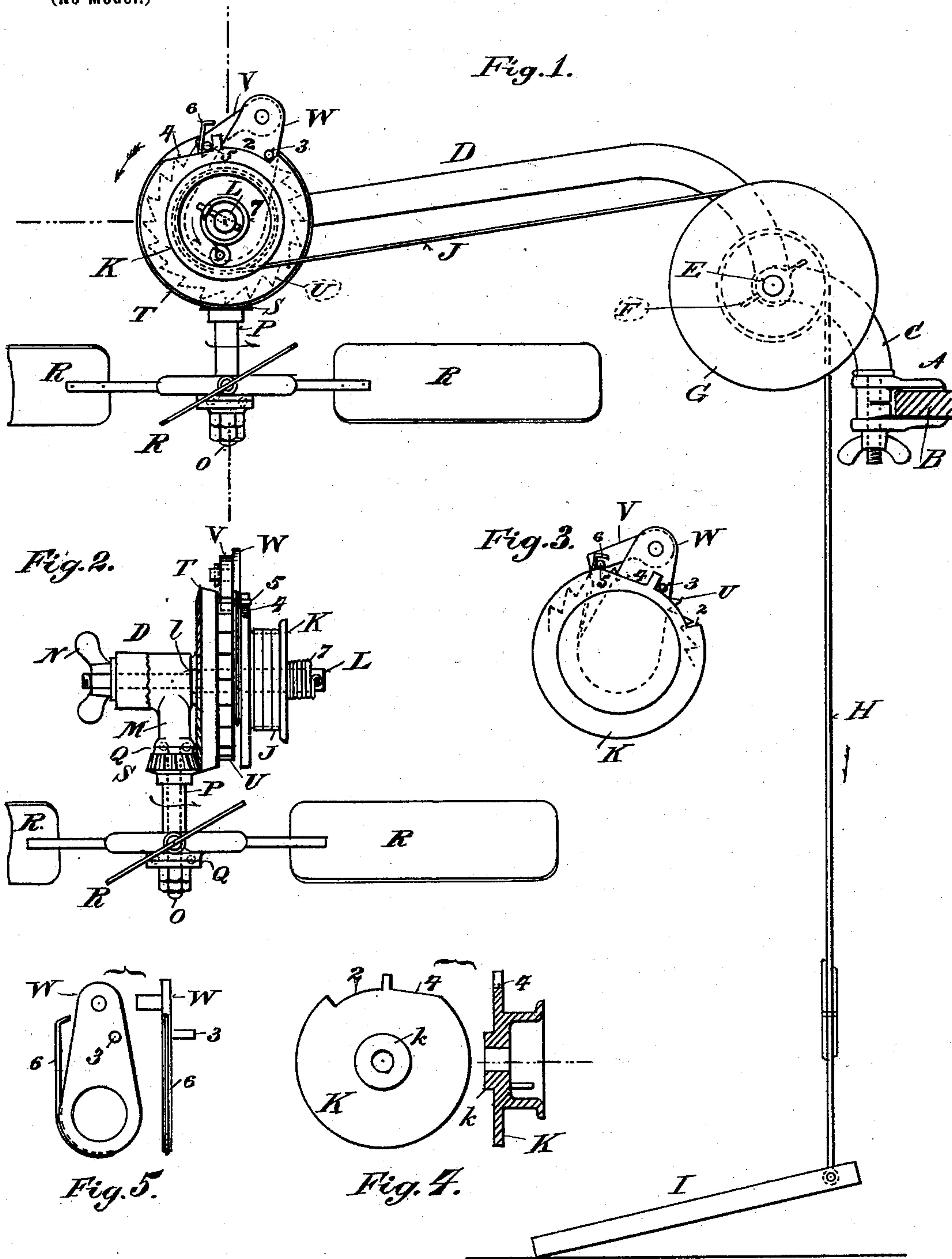
Patented Jan. 15, 1901.

F. PHILIPPI.

FAN.

(Application filed May 16, 1898.)

(No Model.)



Witnesses:
 B. M. Clifton.
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Inventor.
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UNITED STATES PATENT OFFICE.

FRED PHILIPPI, OF ST. LOUIS, MISSOURI, ASSIGNOR OF ONE-HALF TO
ALBERT R. VERDIER, OF SAME PLACE.

FAN.

SPECIFICATION forming part of Letters Patent No. 665,929, dated January 15, 1901.

Application filed May 16, 1898. Serial No. 680,814. (No model.)

To all whom it may concern:

Be it known that I, FRED PHILIPPI, a citizen of the United States, residing at St. Louis, in the State of Missouri, have invented certain new and useful Improvements in Fans, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to certain new and useful improvements in fans, particularly to the class in which the fan proper is intermittently operated by motive power.

The chief object of my invention is to provide a fan that can be operated through a treadle or other intermittently-acting device, that can be readily attached to a shelf, bedstead, desk, or other point of support, and can be adjusted to direct the blast in any direction and with little or no operating noise.

My improvements have reference to a series of pivoted brackets and operative connections whereby a universal adjustment of the fan proper is secured, have reference to a special form of ratchet mechanism, have reference to a special form of bearings for the fan proper to facilitate its operation in any position, and have reference to points of detail hereinafter described and claimed.

In the accompanying drawings, on which like reference characters indicate corresponding parts, Figure 1 represents a side view of my fan provided with a treadle attachment; Fig. 2, a front end view of the fan mechanism; Fig. 3, a detail view of the special form of ratchet, pulley, and pawl in their reversing position; Fig. 4, a side and sectional view of an operative pulley for said pawl, and Fig. 5 a side and edge view of the pawl and plate.

Referring to the drawings, the letter A designates a jaw adapted to be clamped to a shelf or other support B and supporting a curved bracket C on a vertical axis, so that the outer end may be rotated in a horizontal plane. The clamping-jaw may be fastened to an inclined or vertical projection instead of to a horizontal shelf, as shown. An arm D is pivoted by a bolt E at the outer end of the bracket and secured in any vertical adjustment by a thumb-screw F, or otherwise. On said pivot is mounted a double pulley G, hav-

ing an operative connection H from the smaller pulley to a treadle I or other means for rotating it intermittently. The large pulley is connected by a belt J with a pulley K, rotatably mounted on a shaft L. In the outer end of the arm D is mounted a shaft L, turned to form a shoulder that abuts against one end of a hanger M and passing through the end of the arm D. A clamping-nut N on the end of the shaft jams the hanger against the end of the arm in any adjusted position of the latter without binding the bevel T, that is loosely mounted on the shaft. The hanger on its reduced portion O carries the fan proper, consisting of a sleeve P, secured by jam-nuts or otherwise and provided at each end with a ball-bearing Q Q, so it will rotate readily in any adjusted inclination. The sleeve P carries the sockets supporting the fan-blades R, as shown in Figs. 1 and 2. The adjacent faces of the hanger and outer end of the arm D are serrated or otherwise adapted to be held firmly in their adjusted positions by a thumb-screw N. On the sleeve P is also mounted a bevel-pinion S, meshing with a gear T, loosely mounted on the shaft L and having on its rear face a ratchet U, adapted to be engaged by a pawl V, mounted on a pin carried by a plate W, which is interposed between the ratchet and an operative pulley K, having a hub $\frac{1}{2}$, on which said plate is preferably mounted. The plate may be mounted directly on the shaft L or otherwise, if desired. This operative pulley K has a flange which is notched at 2 to form a double shoulder adapted to engage a projecting pin 3 of the plate W, as shown in Figs. 1 and 3. The flange is also notched at 4, providing an inclined cam for a pin 5, projecting from near the point of the pawl V. The spring 6, secured to the plate W or otherwise, tends to maintain the connection of the pawl and ratchet.

When the operative pulley K is rotated in the direction of the arrow, Fig. 1, by the band J, connected to the double pulley G and its treadle connection H and I, the pawl and ratchet will drive the fan by means of the bevel and pinion in the direction of the arrow. The coil-spring 7, connecting the pulley K with the shaft L, will be put under ten-

sion by this forward motion, and when the treadle is released the spring will reverse the pulley K. The first backward motion of the pulley will be of no effect on the plate W, but the incline 4 will lift the pawl immediately from the ratchet, and when the pin 3 is engaged by the opposite shoulder of the notch 2, as in Fig. 3, the plate and the pawl carried thereby will be rotated backward. The pawl being thus held out of contact with the ratchet will be noiseless in its action on this reverse movement. At the end of the backward movement the spring 6, pressing inward, at once throws the pawl and ratchet into engagement, and another effort of the treadle will give a fresh impulse to the fan-blades, which have meantime been rotating freely on the shaft O. Thus it is seen that the operative force acts intermittently on the fan-blades. One chief advantage of this mode of connection is the impulse given to the fan by the sudden application of the forwardly-moving pawl, whereby the blast is suddenly increased, producing a wider effect than if the fan were rotating constantly at a lower rate of speed—that is to say, the action of the blast is similar to that of a hand-fan and produces gusts, instead of a uniform current of air.

I have shown the fan-shaft directed downwardly from the end of the arm D in Fig. 1. It is evident that it may be adjusted at any inclination through the clamping-screw N, Fig. 2, so as to direct the blast directly outward, or at any inclination desired. Through the adjustment at E the arm may be elevated vertically or lowered to any desired height, while by swinging the bracket C a horizontal adjustment is attained. Thus the fan is universally adjustable to any required inclination and position. The advantage of this adjustment is evident in its application to an office-desk, or in the case of its use in the sick-room the fan may be located as required by the nurse to direct any amount of current upon the patient.

The treadle attachment and double pulley G may be replaced by other motor connection according to the circumstances under which the device is to be used; but these have been shown to exemplify its application, as above described. I do not limit myself, however, to the exact construction herein shown.

Having thus fully described my invention,

what I claim as new, and desire to secure by Letters Patent, is—

1. In a fan mechanism, the combination with the fan-blades and their supporting-sleeve P, of a hanger M having a reduced portion O for said sleeve, an arm D, a shouldered shaft L and nut N clamping said hanger and one end of said arm, a bracket C having a clamping-jaw at one end, a pivot bolt and nut clamping together the other ends of said bracket and arm, a double pulley G on said pivot-bolt, an operative connection around the smaller rim of the pulley G, and intervening mechanism connecting the larger rim of pulley G and said fan-sleeve, substantially as described.

2. The combination with an adjustable arm D and a hanger M having a reduced portion O, of a sleeve P revolubly mounted on O, provided with a bevel-pinion S and a fan proper, a shouldered shaft L and clamp-nut N securing said hanger and arm D, a loose bevel-gear T on the shaft L provided with a ratchet-wheel U, an operative pulley K having a notched flange, a plate W interposed loosely between the ratchet and pulley, a pawl on said plate for said ratchet and both pawl and plate controlled by said notched flange, a coil-spring fastened to the shaft L at one end and to said pulley K at the other, a belt J wound on said pulley K, and means to rotate the pulley K a certain distance in one direction against the tension of said coil-spring tending to reverse it.

3. In a fan mechanism, the combination with a fan proper, its driving-gear and pinion, and suitable supports therefor, of a pawl-and-ratchet operative mechanism for said gear, consisting of a ratchet-wheel on the back of said gear, a pawl V having a pin 5, a plate W carrying said pawl, having a spring 6 acting on the pin 5, and also having a pin 3, a pulley K having a flange notched at 2 to form a double shoulder for engaging the pin 3, and also notched at 4 providing an inclined cam for the pin 5, a shaft carrying said operative mechanism, and means to rotate and reverse said pulley intermittently.

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

FRED PHILIPPI.

Witnesses:

H. M. PLAISTED,
A. R. VERDIER.