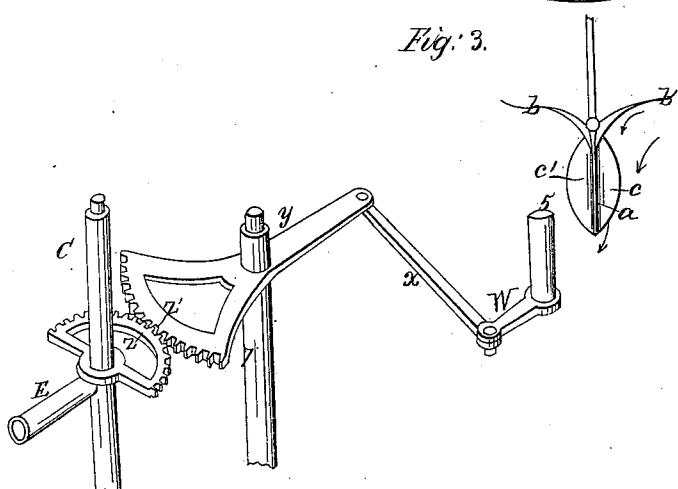
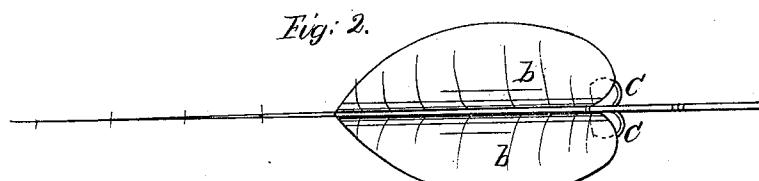
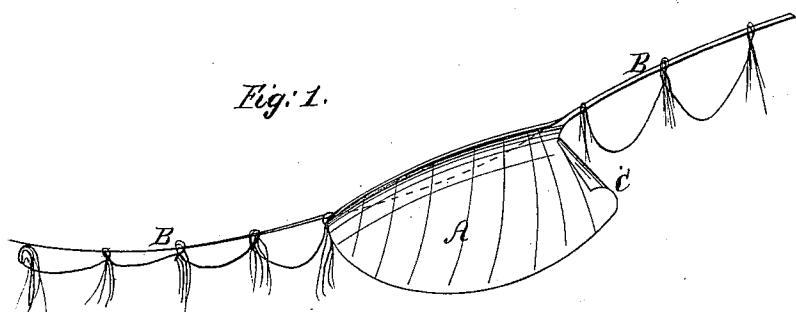


2 Sheets—Sheet 1.

J. BECK.  
AUTOMATIC FAN.

No 77,709.

Patented Apr. 25, 1868.



Witnesses;  
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R. B. Miller

Inventor;  
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2 Sheets—Sheet 2.

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Fig. 5.

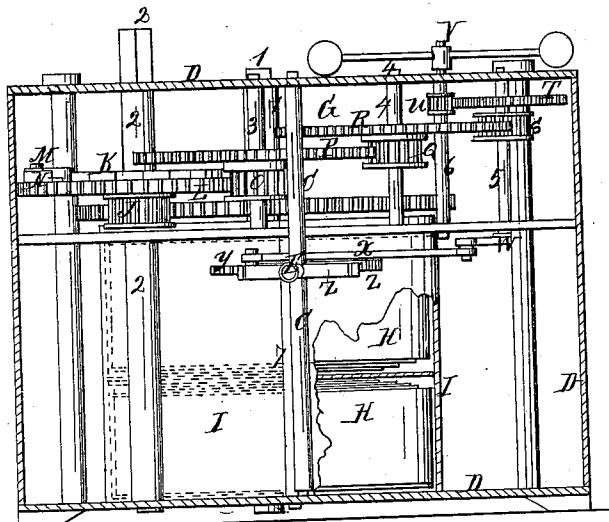
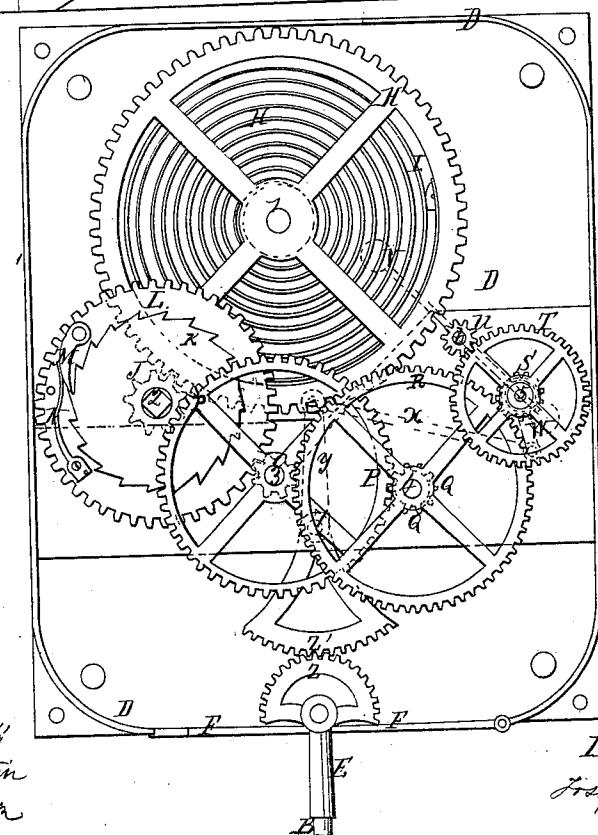


Fig: 6.



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# United States Patent Office.

JOSEPH BECK, OF NEW YORK, N. Y.

*Letters Patent No. 77,709, dated May 12, 1868; antedated April 25, 1868.*

## IMPROVED AUTOMATIC FAN.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, JOSEPH BECK, of the city, county, and State of New York, have made certain new and useful Improvements in Automatic Fans; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 represents a side view of my improved fan detached from the clock-work by which it is propelled.

Figure 2 is a top view of the same, and

Figure 3 an end view of the same.

Figure 4 represents a detached view of the working parts used for converting the rotary motion of the clock-work to a reciprocating motion for propelling the fan.

Figure 5 is a front view of the complete working parts, the casing, the fan, and a portion of the spring-case being shown removed to exhibit more fully the parts shown.

Figure 6 is a plan or top view of the same, the top of the casing shown removed.

Similar letters of reference indicate corresponding parts in the several figures.

The nature of my invention consists—

First, in constructing the fan with a vertical wing, the top edge of which is assisted and protected by horizontal wings, and its rear end is protected by vertical right-angular flanges, so that by these means, when the fan is moving horizontally, the air displaced by the fan is thrown and caused to follow in a direction where the motion of the same is desired, instead of spreading in various directions, in which case, as heretofore, the power of the fan is spent disadvantageously.

Second, it consists in the peculiar gear and combination of working parts employed to act with the clock-work, and to propel the fan, so that the motion imparted from the clock-work is converted from rotary to reciprocating motion, and is regulated to work noiseless, and with less loss of power than those now produced.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

A, figs. 1, 2, and 3, represents the fan, and B the fan-stick, to which the fan is secured.

C, figs. 4, 5, and 6, represents the fan-shaft. It is arranged vertically in the casing, D, of the clock-work, which is used to propel the fan, and the said shaft C is provided with a hollow arm, E, in order to attach the fan-stick, B, to it, and the casing, D, is made with a slot, F, in which the arm E passes freely.

The fan A is constructed with a central vertical wing, a. To each side of its top edge is jointed a horizontal wing, b, which is curved upwards, as shown in figs. 1, 2, and 3, whereby the air in contact, when the fan is in motion, is caused to be thrown downwards. And in order to throw the air in a forward direction, I provide the rear end of the fan with flanges, C C, so that the air is thrown out from the fan in the direction to meet the face of the person using it, in sitting or in lying down. The fan-stick is provided, on its extension projecting from the fan outwards, with trimmings of silk thread, or other fabrics, to ornament the fan, and to serve for driving off the flies and insects from the user's face.

G, figs. 5 and 6, represents the clock-work, for propelling the fan, and it consists of two coiled springs, H H, having their outer ends secured to the casing I, permanent with the bottom of the clock-work casing, and their inner ends being attached to the spring-shaft 1; and upon this shaft is a large gear-wheel, H', or the first wheel of the clock-work, which engages a pinion, J, fixed upon the shaft 2, which has a ratchet-wheel, K, also fixed upon it, and serves the purpose to wind up the springs H H. L is a large gear-wheel, which is placed between the pinion J and ratchet-wheel K, and is loose on the shaft 2, but connects the remainder of the clock-work gearing with the shaft 2, by means of having the pawl and spring, M and N, taking hold in the said ratchet-wheel K, and by means of the gear-wheel L engaging in a pinion, O, fixed upon the shaft 3, upon which shaft is again a large gear-wheel, P, which engages in a pinion, Q, fixed upon the shaft 4, which has also a large gear-wheel, R, secured upon it, meshing in a pinion, S, fixed upon the axle 5. Upon this axle 5 is again fixed

a gear-wheel, T, which engages a pinion, U, fixed upon the fly-wheel or balance-axle 6, upon which the fly-wheel or balance V is secured, for the purpose of regulating the speed of the clock-work, and to prevent the reciprocating motion of the working parts attached and used between the axle 5 and the fan to produce much noise in operating.

To the lower end of this last axle, 5, of the clock-work, I attach a crank, W, which acts upon a spindle, 7, between the axle 5 and the fan-shaft C, by means of being connected by a rod, X, with a long arm, Y, secured to the spindle 7, and thereby converting the rotary motion of the axle 5 into reciprocating motion on the arm Y of the spindle 7. And in order to increase the motion or the sweep of the fan to that obtained from the arm Y, I employ segment-gears, Z' Z, to transmit the motion from the spindle 7 to the fan-shaft, of which the gear Z, secured to the fan-shaft, is somewhat smaller than that secured on the spindle 7.

From the foregoing it will be seen, by means of the combined working parts by which the motion from the clock-work is transmitted to the fan, the fan is made to make a large sweep. Its motion is well regulated, and little power is lost in order to obtain such motion. And it will be perceived, by means of constructing the fan with the wings, as herein shown, the power spent with it is more fully made use of than with those now produced.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The employment of the fan C, constructed with the protectors b b and c c, operated and for the purpose substantially as herein described.
2. The arrangement and combination of the clock-work G, the balance V with the crank W, the rod X, the arm Y, the axle 7, the gear Z Z, and the fan-shaft C, operated and for the purpose substantially as herein shown.

JOSEPH BECK.

Witnesses:

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R. BOEKLEN.