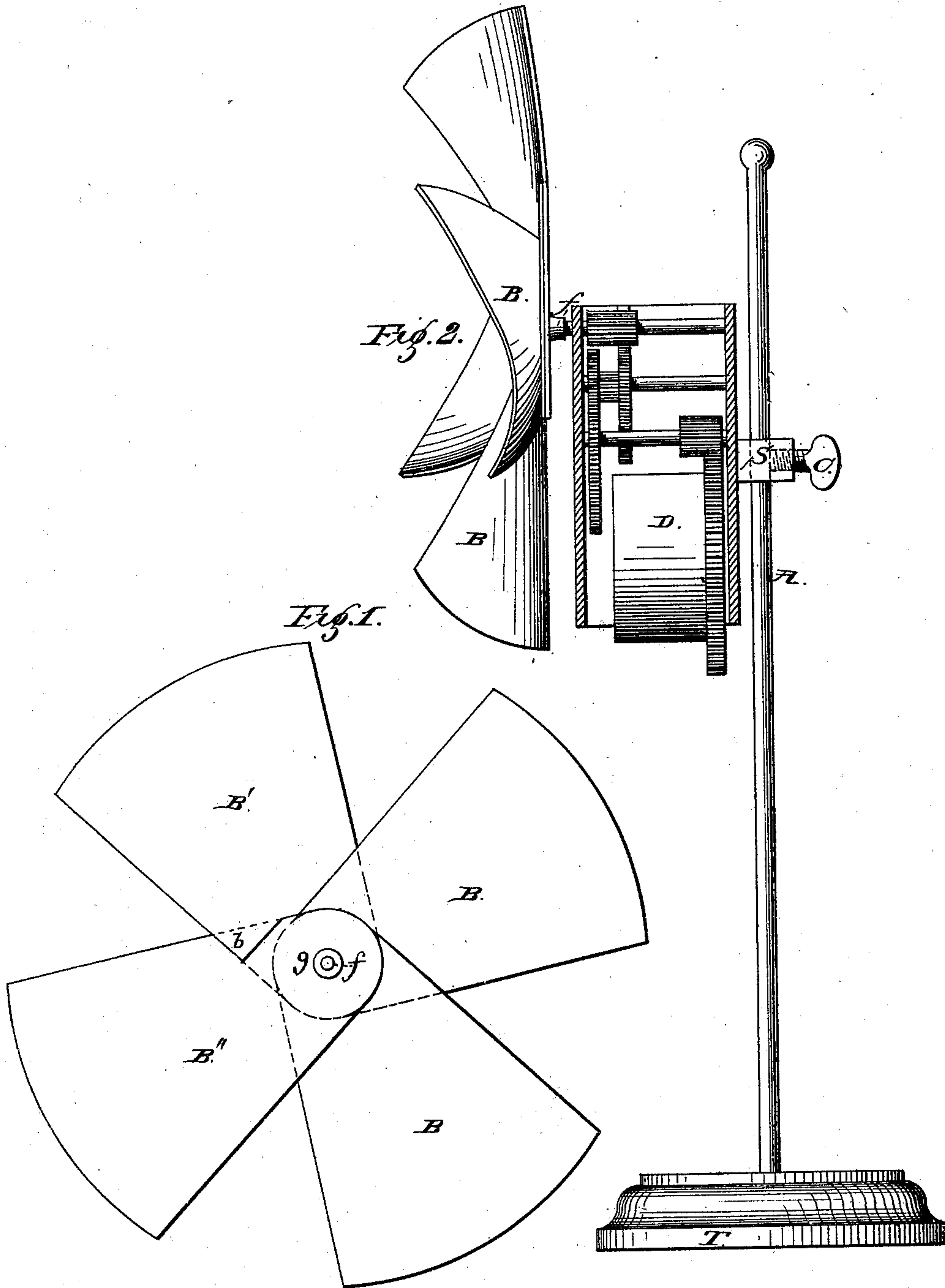


A. F. CLOUDMAN.

AUTOMATIC-FAN.

No. 170,989.

Patented Dec. 14, 1875.



Witnesses:
Joseph M. Fernandez.
J. H. Hawaford.

Inventor:
Augustus F. Cloudman

UNITED STATES PATENT OFFICE.

AUGUSTUS F. CLOUDMAN, OF BROOKLYN, NEW YORK, ASSIGNOR OF ONE-HALF HIS RIGHT TO JOSÉ FERNANDEZ, OF SAME PLACE.

IMPROVEMENT IN AUTOMATIC FANS.

Specification forming part of Letters Patent No. **170,989**, dated December 14, 1875; application filed June 1, 1875.

To all whom it may concern:

Be it known that I, AUGUSTUS F. CLOUDMAN, of the city of Brooklyn, county of Kings and State of New York, have invented a new and useful Improvement in Automatic Fans, and the following specification, taken in connection with the drawing forming part of the same, furnishes a full and clear description thereof.

My invention has reference to a fan, to be worked automatically, for use in warm weather, or in a sick-chamber, or for ventilation; and it consists in the peculiar construction thereof.

In the drawing, Figure 1 is a front view of the fan, and Fig. 2 is an end view of the same.

The motive power which I prefer to use is a strong spring with a going-barrel and toothed wheels, so as to give a rapid and long-continued revolution to a shaft, *f*. To the end of this shaft *f* I attach the blades *B*, either in the form of simple radii, or having each piece form two blades, pivoted at the middle.

The peculiarity of the fan consists in having its blades not in the form of a plane, but being constructed so that, while one edge has its plane nearly at right angles to the direction of the shaft *f*, the surface of the blade gradually curves until its other edge has its plane in nearly the same direction as the length of the shaft *f*.

The effect of this construction is that, with such blades projecting from around the shaft *f*, the revolution of the shaft *f* and fan will cause a current or draft of air to be thrown straight outward in the direction of the length of the shaft, the force of the current varying with the rapidity of revolution and the diameter of the fan.

The blades of the fan can be made of thin sheet metal, which should be given the requisite curvature, and can then be united with

the other blades. This is done by perforating each blade to receive the shaft *f*, which shaft is formed with a screw-thread, upon which the nut *g* works, to clamp the blades together and to the shaft. The under blade *B'* has a slot, *b*, in its turned-up edge, to receive the turned-down edge of the upper blade *B''*, thus further clamping all the blades together.

This construction causes the whole body of air in contact with the face of the fan to move forward with an impulse of comparatively great force.

This construction also allows the blades to be closed up, and the whole fan packed in a small space without detaching any portion of it from the shaft *f*.

The fans can be made in a superior manner of light split bamboo, and covered with paper, lightness being a great desideratum.

An ordinary clock-work of four or five inches in diameter can be easily made to revolve one of these fans for an hour or two at a time with the requisite effect.

Having thus described my invention, I wish to be understood as not claiming, broadly, a fan actuated by clock-work or other machinery, nor do I claim, broadly, a mere adjustable stand, as described; but

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

A fan-wheel consisting of the blades *B*, *B'*, and *B''*, each curved so that its two edges are in different planes, and the under blade *B'* having the slot *b* to receive the edge of the upper blade *B''*, substantially in the manner and for the purposes described.

AUGUSTUS F. CLOUDMAN.

Witnesses:

JOSEPH M. FERNANDEZ,
F. W. HANAFORD.