

No. 872,307.

PATENTED NOV. 26, 1907.

F. G. SARGENT.  
PROPELLER OR FAN.

APPLICATION FILED SEPT. 27, 1905.

Fig-3- Fig-2-

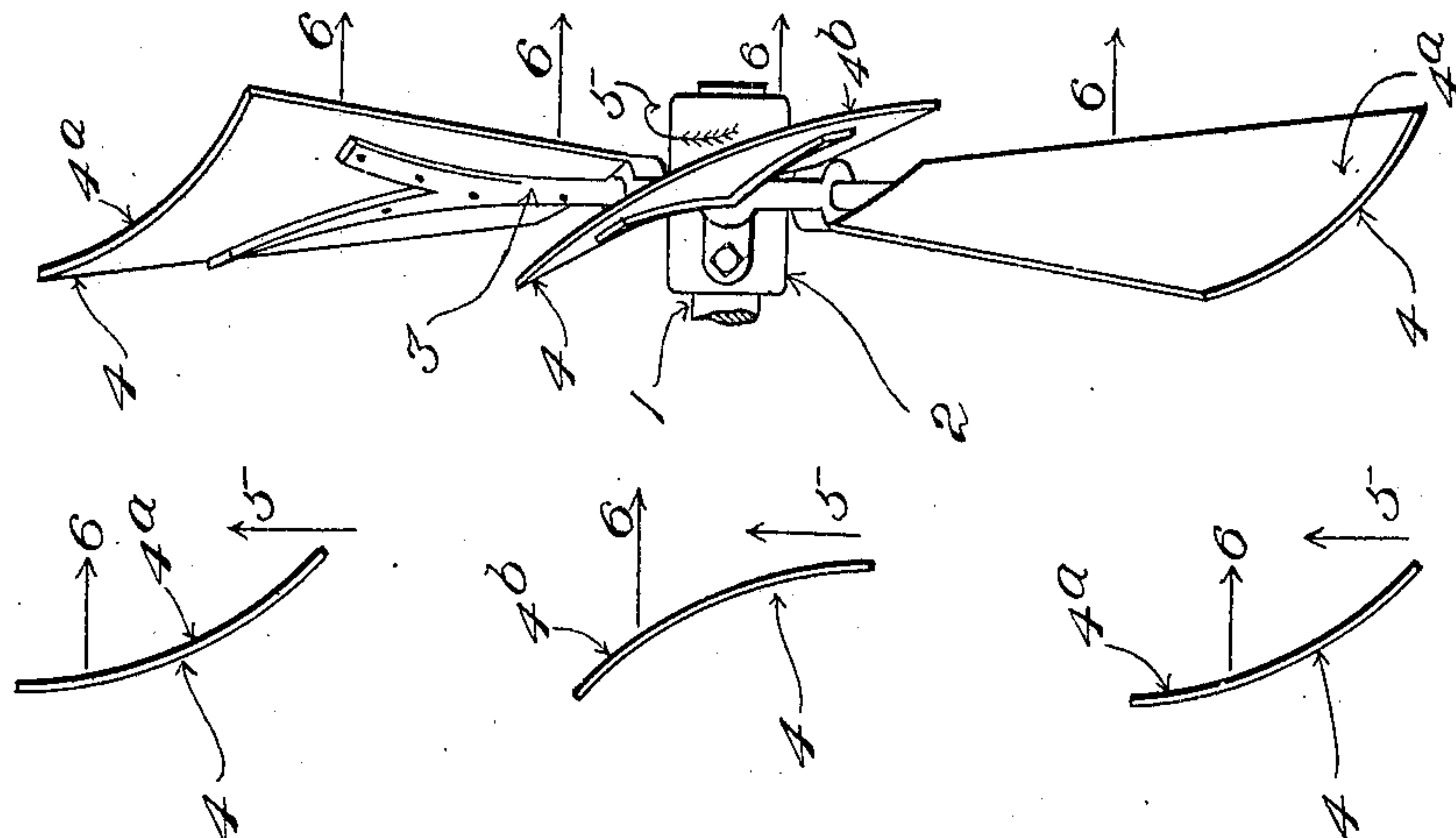
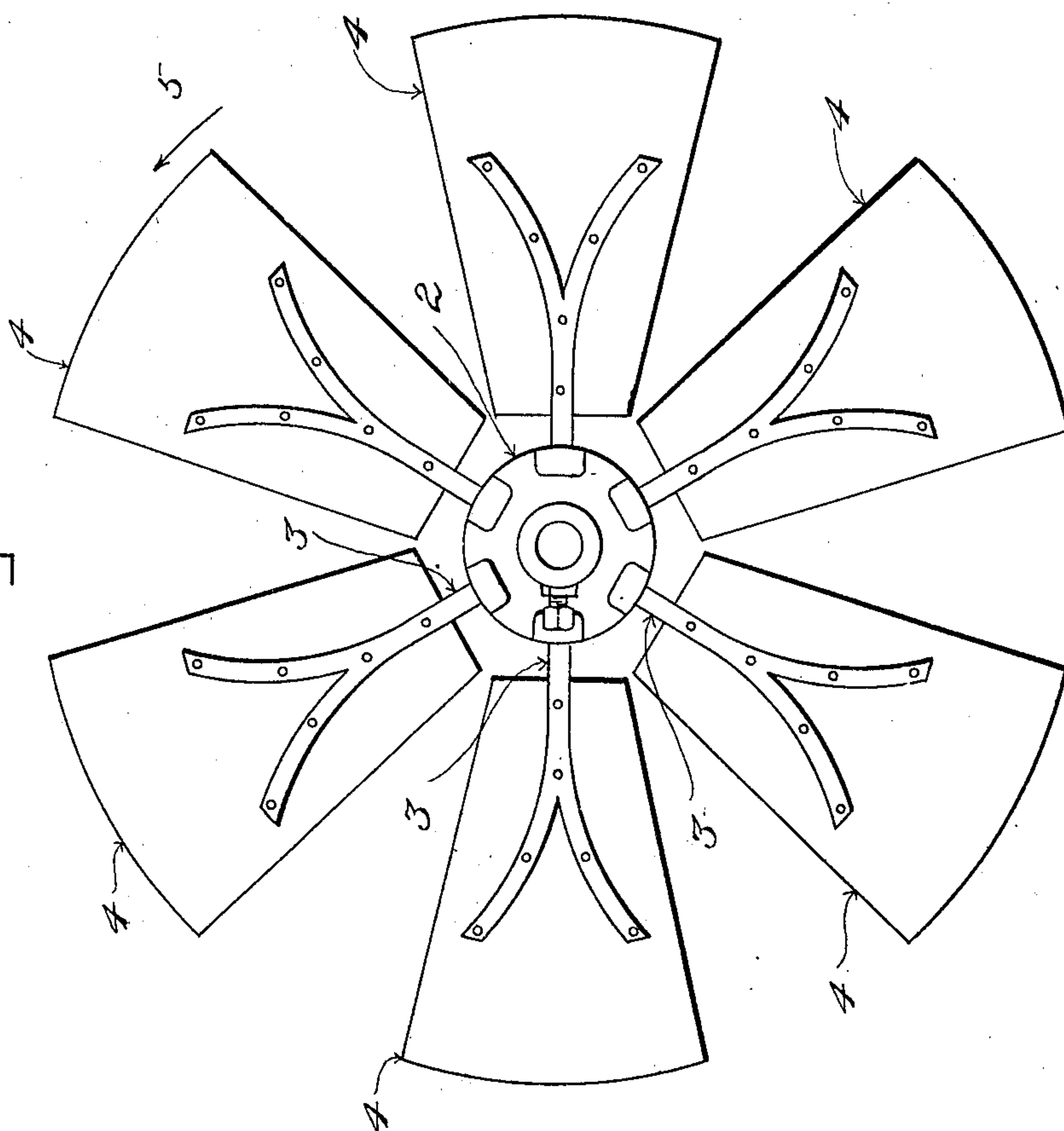


Fig-1-



WITNESSES.

Oscar F. Hill  
Alice Tarr

INVENTOR

Frederick G. Sargent  
By Chas. F. Randall

ATTORNEY.

# UNITED STATES PATENT OFFICE.

FREDERICK G. SARGENT, OF GRANITEVILLE, MASSACHUSETTS, ASSIGNOR TO C. G. SARGENT'S SONS CORPORATION, OF GRANITEVILLE, MASSACHUSETTS, A CORPORATION OF MASSACHUSETTS.

## PROPELLER OR FAN.

No. 872,307.

Specification of Letters Patent.

Patented Nov. 26, 1907.

Application filed September 27, 1905. Serial No. 280,266.

*To all whom it may concern:*

Be it known that I, FREDERICK G. SARGENT, a citizen of the United States, residing at Graniteville, in the county of Middlesex, State of Massachusetts, have invented a certain new and useful Improvement in Propellers or Fans, of which the following is a specification, reference being had therein to the accompanying drawings.

10 The invention consists in a device of novel construction designed and adapted for use either as a propeller, or as a rotary fan for ventilating, blowing, or drying purposes, and which has peculiar and important advantages when employed for producing the currents of air which are utilized in the process of drying.

20 The general object of the invention is to produce a device by the action of which the fluids set in motion thereby shall be more diversely scattered or spread than in the case of the ordinary device having all of its vanes or blades set with similar or corresponding acting faces facing in the same direction.

25 The invention consists in a propeller or fan having certain of the vanes or blades thereof with acting faces which are concave and others with acting faces which are convex, with the concave and convex acting faces arranged in an alternating order of succession in the series of vanes or blades.

An embodiment of the invention is illustrated in the accompanying drawing, in which latter,—

35 Figure 1 shows in elevation a device constructed in conformity with the invention. Fig. 2 shows the same in side elevation. Fig. 3 is a diagram showing the sequence of concave and convex vanes or blades.

40 Having reference to the drawings,—at 1, Fig. 2, is shown a portion of a suitable supporting shaft; at 2 is the hub of the propeller or fan, it being mounted upon the said shaft; at 3, 3, etc., are arms which are fixed to the said hub and radiate therefrom; and at 4, 4, etc., are the vanes or blades. The arrow 5

in each of the figures shows the direction of rotation, and the arrows 6, 6, etc., in Figs. 2 and 3 show the direction in which, for instance, air is forced in case of utilization of the invention in a fan. The acting faces of the alternate vanes or blades are designated, respectively, 4<sup>a</sup>, 4<sup>a</sup>, and 4<sup>b</sup>, 4<sup>b</sup>. The former, namely, 4<sup>a</sup>, 4<sup>a</sup>, are concave, and the others, namely, 4<sup>b</sup>, 4<sup>b</sup>, are convex.

The concave acting faces will act differently from the convex acting faces upon the fluid in which the device rotates, and the result will be a more general spreading and intermingling of the resulting currents.

I have found the device of great value in machines used for drying moist materials, in which such materials are spread upon screens and currents of air are caused to pass there-through. In such machines, when employing rotary fans or blowers having all the vanes or blades set in the same position, the force of the air sometimes is too much concentrated to get the best results. In some cases there is a tendency to blow the stock out of place and scatter it about the screen, whereas it is desired that the material should not be disturbed after once being placed upon the screen. By having some of the vanes or blades set reversely with relation to the others, my invention causes a scattering and spreading of the air-currents which facilitates the drying operation and at the same time obviates the tendency aforesaid to disturb the stock or material upon the screen.

What is claimed as the invention is:—

A rotary propeller or fan comprising vanes or blades following one another in series and alternately having concave and convex faces facing in the direction of movement.

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

FREDERICK G. SARGENT.

Witnesses:

GEORGE F. IRISH,  
OSBORN H. CILLEY.