S. VIVIANO.

FAN.

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Fig. 1.

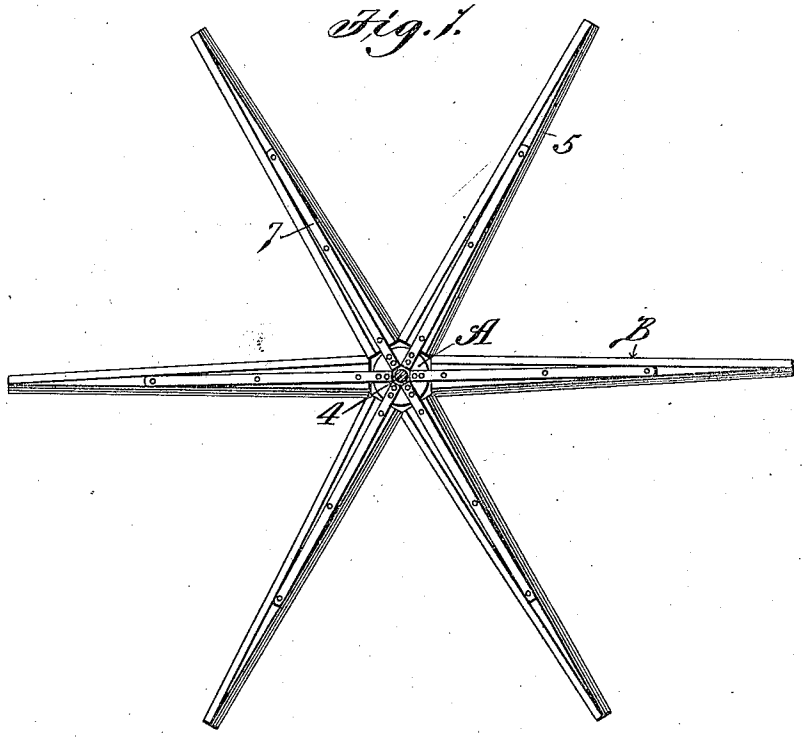


Fig. 2.

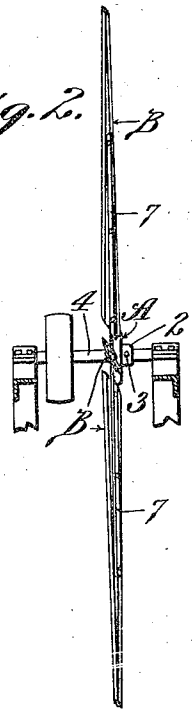
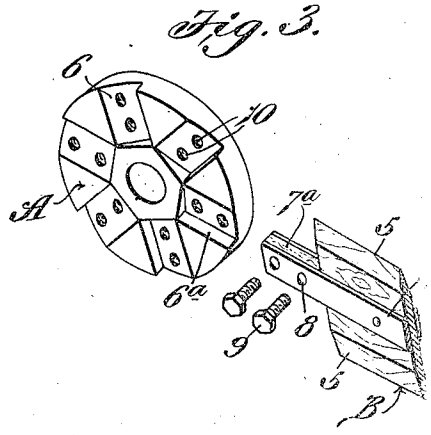


Fig. 3.



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UNITED STATES PATENT OFFICE.

SALVATORE VIVIANO, OF ST. LOUIS, MISSOURI.

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To all whom it may concern:

Be it known that I, SALVATORE VIVIANO, a citizen of the United States, residing at St. Louis, Missouri, have invented a certain new and useful Improvement in Fans, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to rotatable fans, and particularly, to fans of the kind that are used for causing air to circulate through a compartment containing material which requires drying.

The main object of my invention is to provide a fan which is so constructed that it will produce a substantially uniform and equal distribution of air throughout the entire area of a passageway in which the fan is arranged centrally with its axis parallel to the longitudinal axis of said passageway.

Another object is to provide a strong and inexpensive fan having the characteristics above mentioned and also the added advantage of blades which are of such cross-sectional shape that the air offers very little resistance to their forward movement.

To this end I have devised a rotatable fan comprising blades arranged at right angles to the axis of the fan and diminishing gradually in width from their inner toward their outer end, the blades being so proportioned that when the fan is in operation the volume of air discharged from the center of the fan will be substantially the same as the volume of air discharged from the periphery of the fan and the entire volume of air set in motion by the fan will travel longitudinally through the compartment or passageway in which the fan is arranged in a direction parallel to the axis of the fan, thereby causing air to be distributed uniformly and equally throughout the entire area of said compartment or passageway.

Figure 1 of the drawings is a side elevational view of a fan constructed in accordance with my invention;

Fig. 2 is an edge view of said fan; and

Fig. 3 is a perspective view of the hub of the fan and the inner end portion of one of the blades.

Referring to the drawings, which illustrate the preferred form of my invention, A designates the hub of the fan which preferably consists of a disk-shaped piece of metal provided at one side with an integral sleeve 2, shown in Fig. 2, through which a fastening device 3, such, for example, as a set screw passes, so as to secure the fan to the shaft 4 which operates the same. The blades B of the fan are tapered longitudinally from their inner toward their outer ends, so that the inner end portions of the blades will be enough wider than the outer end portions of said blades to insure a substantially uniform and equal distribution of air throughout the zone to which the fan supplies air and said blades are arranged at right angles to the axis of the fan so that when the fan is in operation the air set in motion by the blades will flow through the compartment or passageway in which the fan is arranged in a direction parallel to the longitudinal axis of said passageway. The longitudinal side edges of the blades B are tapered, preferably to a feather edge 5, as shown in Fig. 3, so that when the fan is in operation the air will offer very little resistance to the forward movement of the blades. The blades B can be made of any suitable material, but they are preferably made of wood and they can be connected to the hub A in various ways without departing from the spirit of my invention. I prefer, however, to provide each of the blades B at its inner end with a shank that is seated in a ratchet toothed notch 6 formed in one of the side faces of the disk A, the side of said shank bearing against the inclined bottom face of the notch 6 and one edge of the shank bearing against the end wall 6^a of said notch. The shank on the inner end of each blade B can be formed conveniently of two flat strips of metal 7 that extend longitudinally of the blade on opposite sides of same and embrace a reduced extension 7^a at the inner end of the blade, the shank being provided with holes 8, as shown in Fig. 3, through which screws or other suitable fastening devices 9 pass and project into internally screw-threaded holes 10 in the disk A, so as to securely connect the blade to the hub of the fan.

A fan of the construction above described is strong and serviceable; it is inexpensive to manufacture and when it is in operation it will distribute air equally and uniformly through the zone to which it supplies air, due to the fact that the blades are so proportioned that the volume of air discharged

from the center of the fan will be substantially the same as the volume of air discharged from the periphery of the fan.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is:

1. A fan, comprising a hub, longitudinally tapered blades, reinforcing elements arranged on the opposite sides of each blade which project beyond the inner end of same so as to form a shank, and means for securing the shanks of said blades to said hub.

2. A fan, comprising a hub having a vertically-disposed face in which ratchet toothed notches are formed, which notches extend radially from the center of the hub, blades which gradually diminish in width from their inner toward their outer ends, said blades having longitudinal side edges that are tapered, and reduced shanks on the inner ends of said blades that are seated in said notches and secured to said hub.

SALVATORE VIVIANO.