June 8, 1937. E. L. ANDERSON 2,083,187

FAN

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FIG. 1.

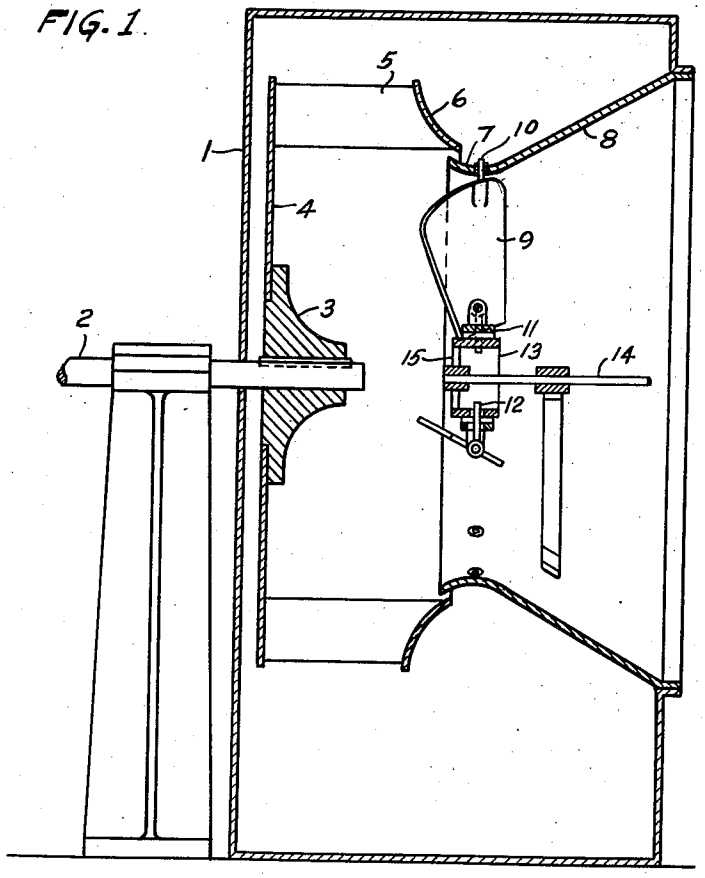
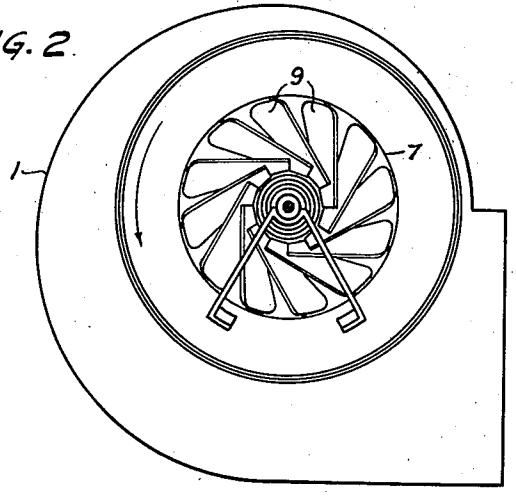



FIG. 2.




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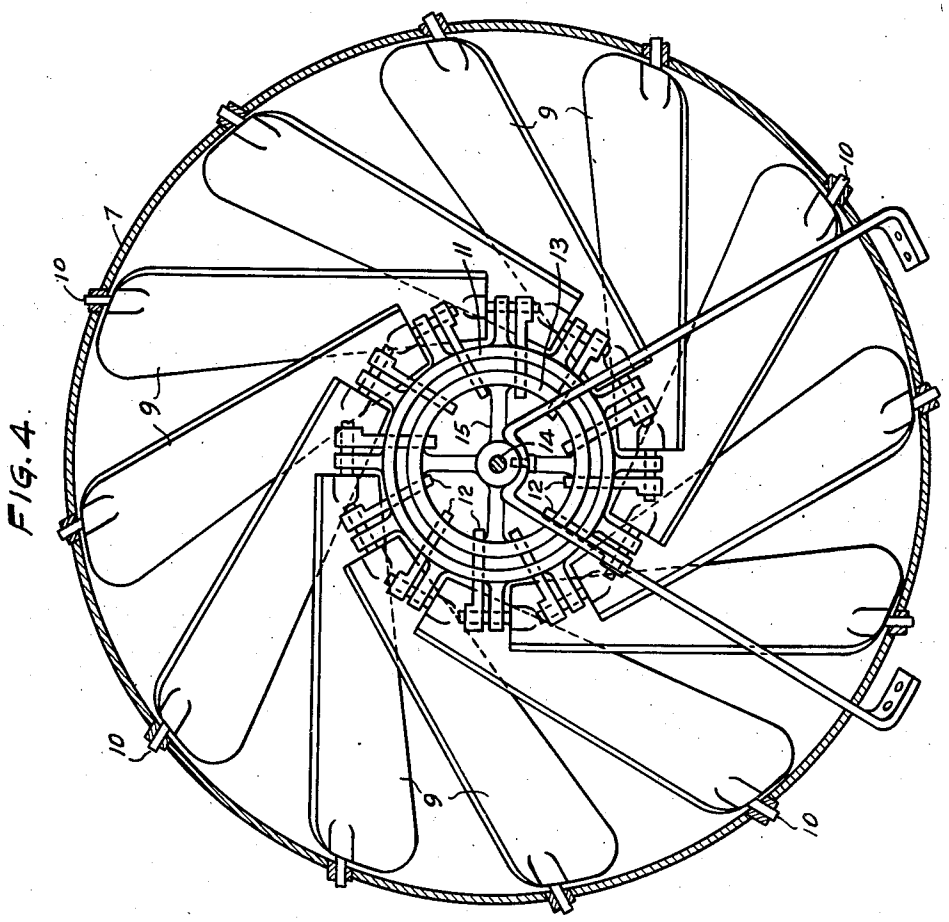



FIG. 4.

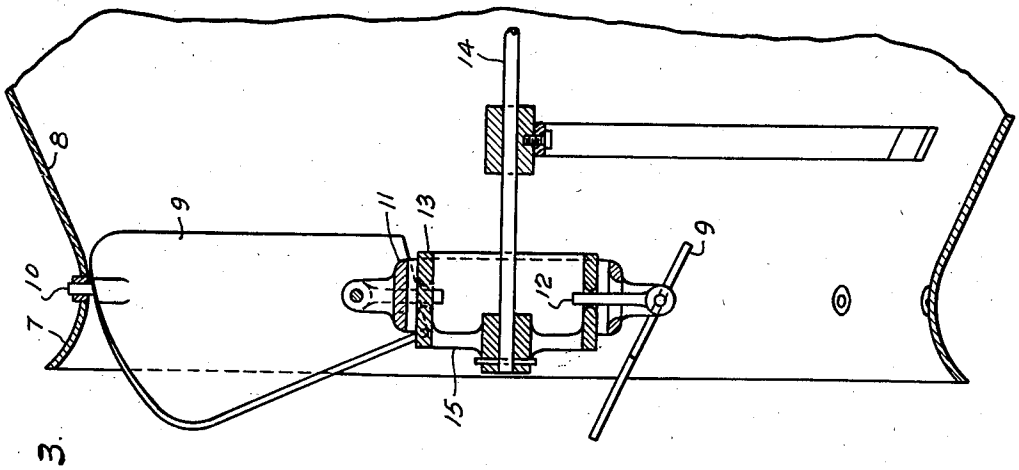



FIG. 3.

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# UNITED STATES PATENT OFFICE

2,083,187

## FAN

Edward L. Anderson, Detroit, Mich., assignor to American Blower Corporation, Detroit, Mich., a corporation of Delaware

Application March 23, 1936, Serial No. 70,199

4 Claims. (Cl. 230—114)

This invention relates to blowers and in particular to means for controlling the volume of air delivered by a blower and for imparting a preliminary whirl to the air entering the rotor on the blower.

In particular it is the object of this invention to provide a plurality of vanes adjustably mounted for rotation on their own axes in the Venturi throat of an inlet passageway of the blower.

It is an object to arrange the axes of rotation of said vanes on non-radial lines so as to facilitate the rotary movement of the air as imparted to the air by the non-radial vanes.

It is a further object to provide an adjusting hub within the inlet passageway for adjusting the angularity of said vanes in order to control the volume and degree of whirl of the entering air.

Referring to the drawings, Figure 1 is a vertical section through the blower casing, the rotor, and the inlet passageway, showing the vanes and hub supporting the vanes in elevation.

Figure 2 is a side elevation on the inlet side of the blower.

Figure 3 is a detailed elevation with the air inlet casing in section showing a typical arrangement of the guide vanes and one means of actuating them.

Figure 4 is a vertical section through a part of the air inlet casing and through the adjusting mechanism with two of the blades in position to indicate the arrangement of the blades. Some of the blades have been left off in order to make the view clearer.

Referring to the drawings in detail, 1 designates a casing of the blower. 2 is the rotor shaft having the hub 3 carrying the back plate 4 of the rotor which is provided with a plurality of horizontally disposed arcuate blades 5 mounted on the plate 4 and carrying on their outer ends the arcuate ring 6 which partially overlaps and is spaced from the Venturi end 7 of the conical inlet passageway 8. Mounted in this conical inlet passageway at right angles to the axis thereof is a plurality of air control and guide vanes 9 pivoted on axles 10 that are arranged non-radially of the axis of the inlet pasageway. The inner ends of these axles are mounted upon a hub or drum 11. The inner ends of these axles are provided with a plurality of levers 12 extending through the wall of the drum 11. An adjusting ring 13 is connected to the levers and by being moved inwardly and outwardly, the vanes 9 are rotated. This movement of the ring 13 is accomplished in any desired manner as by a rod 14 which is connected by a spider 15 to the ring 13.

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

1. In a blower, a casing, a conical inlet passageway having a Venturi throat at the inner end thereof, a plurality of radiating blades mounted within said Venturi throat adjustable on radiating axes that are non-radial to the axis of the inlet passageway, and means of adjusting the angular position of said blades.

2. In combination, in a blower, of a casing, a rotor, a conical inlet passageway having a Venturi throat, and a plurality of blades pivotally mounted within said throat at right angles thereto, the axes of said blades being arranged non-radially of the center of said Venturi throat.

3. In combination, in a blower, of a casing, a rotor, a conical inlet passageway having a Venturi throat, a plurality of blades pivotally mounted within said throat at right angles thereto, the axes of said blades being arranged non-radially of the center of said Venturi throat, a centrally arranged hub for supporting the inner ends of said blades and means therein for adjusting the position of said blades.

4. In combination, in a blower, of a casing, a conical inlet, a rotor adjacent thereto and a plurality of rotatable blades located within the inner end of said passageway, the axes of said blades being arranged non-radially of the center of said passageway, and means of adjusting the rotatable position of said blades.

EDWARD L. ANDERSON.