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H. H. HEATH ET AL

VENTILATOR BLOWER FAN

Filed Aug. 17, 1920

Fig 1.

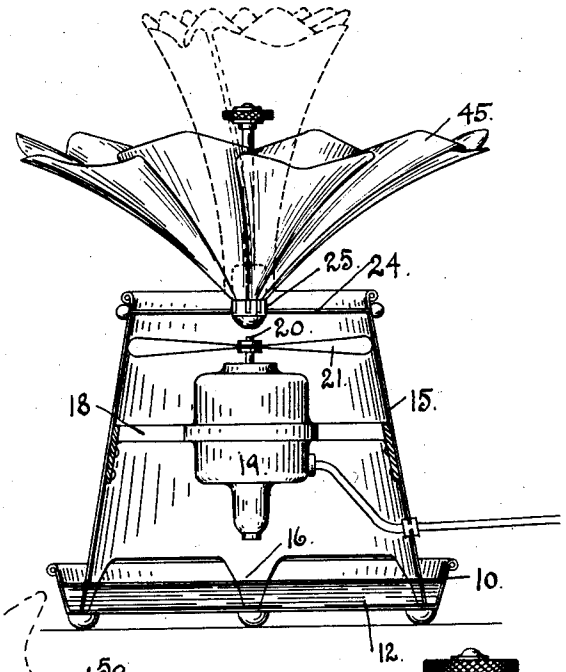
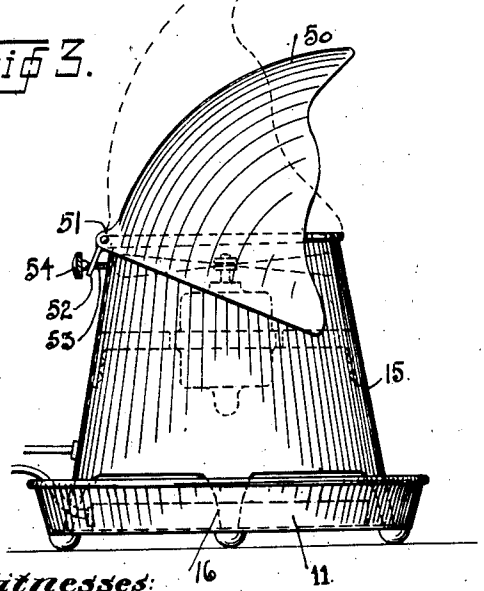


Fig 3.



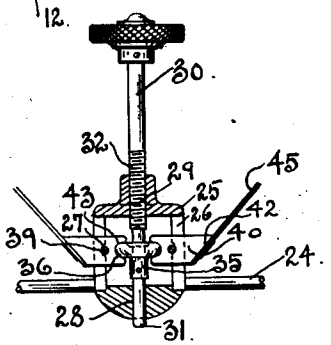


Fig 7.

Witnesses:
Chas. E. Pfiteman.
H. D. Penney

Inventors:
Harry H. Heath,
August J. Mottlau,
By their Atty, F. H. Richards

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UNITED STATES PATENT OFFICE.

HARRY H. HEATH AND AUGUST J. MOTTLAU, OF FAR ROCKAWAY, NEW YORK.

VENTILATOR BLOWER FAN.

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To all whom it may concern:

Be it known that we, HARRY H. HEATH, a citizen of the United States, residing at Far Rockaway, in the county of Queens and State of New York, and AUGUST J. MOTTLAU, a subject of the King of Denmark, residing at Far Rockaway, in the county of Queens and State of New York, have invented certain new and useful Improvements in Ventilator Blower Fans, of which the following is a specification.

This invention relates to deflector fans of the type adapted to send an upwardly and outwardly directed flow of air, and has for its object to provide adjustable means for varying the direction of said flow.

It is of course understood that the fan may be directed upwardly or downwardly or in other directions, and that the adjustable means is used to direct the flow of air.

Other objects of the invention will appear as the description proceeds; and while herein minute details of the invention are disclosed, the invention is not limited to these, since many and various changes may be made without departing from the scope of the invention as claimed.

In the accompanying drawing showing by way of example, two of many possible embodiments of the invention,

Figure 1 is a central vertical section partly in elevation of one form of the device;

Fig. 2 is a similar fragmental view of a detail thereof; and

Fig. 3 is a side elevation of another form of the invention.

Each of the two forms of our invention comprise a vessel 10 receiving a temperature changing element such as a heating unit 11 (Fig. 3) or water, ice, disinfecting, odorizer or the like (Fig. 1), in said vessel over which rests an axially vertical approximately cylindrical housing 15 open at both ends and provided with spacing legs 16 resting in said vessel and holding the drum spaced from said element 11 or 12. A bracket 18 fixed diametrically across the drum carries a motor 19 fixed in the mid-part of said drum and having a vertical shaft 20 carrying a fan 21 on its upper end to provide an upward draft of air.

In the device of Figs. 1 and 2, rods 24 carry a cylindrical cage 25 coaxial just above said fan and provided with vertical side slits 26 (Fig. 2), an inner annular groove 27 intersecting said slits, a lower axial smooth bore 28 and an upper axial threaded bore 29, said bores receiving a threaded manipulating adjusting spindle 30 having a smooth lower portion 31 in said bore 28 and a threaded portion 32 in said threaded bore 29. An actuating collar rest 35 fast on said spindle 30 is formed with a rounded annulus 36 about opposite said groove 27. A ring spring 39 in said groove 27 carries tilting pieces 40 adjustably radially pivoted on said ring and projecting inwardly and outwardly from said slits 26 and provided at the outer ends with lower inclined faces 42 and at the inner ends with rounded notches 43 receiving said annulus. Upwardly and outwardly inclined flaring deflector leaves 45 have their lower ends secured to said inclined faces, at such an angle that alternate leaves are staggered and out of contact with each other to prevent rattling from vibration and are slightly overlapping.

By rotating the spindle 30 the annulus 36 is moved up or down thus changing the inclination of the tilting pieces and the leaves carried thereby, and consequently changing the flare of the approximately core shaped deflector formed by said leaves as a whole, as shown by the dotted and solid lines of Fig. 1.

Instead of a core shaped deflector Fig. 3 shows a deflecting cowl 50 hinged at its rear part 51 to the upper edge of said housing and provided with a downward extension ear 52 provided with an opening in which is received an adjusting screw 53 passed through said opening and having threaded engagement with said housing and also having an outer band engaging said ear.

The weight of the cowl yieldably holds the ear 52 against the head 54 whereby the angle of the cowl may be adjusted, as shown by the dotted and solid lines, by turning the head 54.

The operation of the device is very simple. It is merely set where its use is desired, as in a room on a table, or other support, and

the electric current turned on. If a horizontally directed flow of air is desired, the leaves are adjusted as in the solid lines or to a more nearly horizontal position. If it be desired that the current go mostly up, the position of the dotted line is taken.

The heating or cooling element may be used or omitted depending upon the state of the weather and the desire of the user.

The form of Fig. 1 is preferable for the middle of a room or table or where people are grouped around the fan. The form of Fig. 3 is suitable for the side, end or corner of a room or table on where one or several persons are seated at one side only of the device or where some prefer more or less breeze than others. Many other uses will readily suggest themselves.

Having thus described our invention, we claim:

1. A device comprising a fan to provide an upward draft; a support in the field of said fan; and outwardly inclined deflector leaves adjustably pivoted to said support; and a single rotary spindle operable with a single hand for adjusting all of said leaves in unison.

2. A device comprising a housing; a fan therein to provide an upward draft; a support on said housing coaxial in the field of said fan; and outwardly inclined deflector leaves adjustably pivoted to said support; and a single rotary spindle operable with a single hand for adjusting all of said leaves in unison.

3. A device comprising a shallow vessel; a temperature changing element in said vessel; an axially vertical approximately cylindrical housing open at both ends, disposed over and spaced from said element; a motor in said housing and having a vertical shaft; and a fan on said shaft constructed and driven to draw air in at the bottom of said housing, and to pass it in contact with said element and the motor and discharge it at the upper end of the housing.

4. A device comprising a shallow vessel; a temperature changing element in said vessel; an axially vertical approximately cylindrical housing open at both ends, disposed over and spaced from said element; a motor in said housing and having a vertical shaft; a fan on said shaft constructed and driven to draw air in at the bottom of said housing, and to pass it in contact with said element and the motor and discharge it at the upper end of the casing; and a deflector at said upper end.

5. A device comprising a shallow vessel; a temperature changing element in said vessel; housing open at its upper and lower part, disposed over and spaced from said element; and a fan in said housing constructed and driven to draw air in at said lower part, across said element and discharge it at said upper part.

6. A device comprising a shallow vessel; a liquid temperature changing element in said vessel; and axially vertical housing open at its upper and lower ends, disposed over and spaced from said element; and a fan in said housing constructed and driven to draw air in at said lower end, across said element and discharge it at the upper end.

7. A device comprising a vessel; a temperature changing element in said vessel; housing open at its upper and lower ends, and disposed over and spaced from said element; and means in said housing adapted to draw air in at said lower end, across said element and then discharge it.

8. A device comprising a shallow vessel; a temperature changing element in said vessel; an axially vertical approximately cylindrical housing open at both ends, disposed over and spaced from said element; a motor in said housing and having a vertical shaft; and a fan on said shaft.

9. A device comprising an axially vertical fan for causing an upward draft; a cylindrical cage coaxial just above said fan and provided with vertical side slits, an inner annular groove intersecting said slits, a lower axial smooth bore, and an upper axial threaded bore; a threaded manipulating spindle having a smooth lower portion in said smooth bore and a threaded intermediate portion in said threaded bore; an actuating collar fast on said spindle and formed with a rounded annulus about opposite said groove; a ring sprung in said groove; tilting pieces adjustably radially pivoted on said ring and projecting inwardly and outwardly from said slits and provided at the outer ends with lower inclined faces and at the inner ends with rounded notches receiving said annulus; and upwardly and outwardly inclined and flaring deflector leaves having their lower ends secured to said inclined faces, at such an angle that alternate leaves are staggered out of contact and slightly overlapping.

10. A device comprising a shallow vessel; a temperature changing element in said vessel; an axially vertical approximately cylindrical housing open at both ends and provided with spacing legs resting in said vessel and holding the drum spaced from said element; a motor fixed in the mid part of said drum and having a vertical shaft; a fan on the upper end of said shaft to provide an upward draft of air; and an adjustable deflector above said fan.

11. A device comprising a shallow vessel; a temperature changing element in said vessel; an axially vertical approximately cylindrical housing open at both ends, disposed over and spaced from said element;

a motor in said housing and having a vertical shaft; and a fan on said shaft.

12. A device comprising a base; a temperature changing element on said base free of combusting gases; a housing open at its upper and lower part, disposed over and spaced from said element; and a fan in said housing constructed and driven to draw air in at said lower part, across said element and discharge it at said upper part.

HARRY H. HEATH.
AUGUST J. MOTTLAU.

Witnesses:
H. D. PENNEY,
JOHN MORRIS.