Jan. 13, 1953 G. J. REISCH 2,625,319

RADIAL FLOW ELECTRIC FAN

Filed May 26, 1951 2 SHEETS—SHEET 1

Fig. 1.

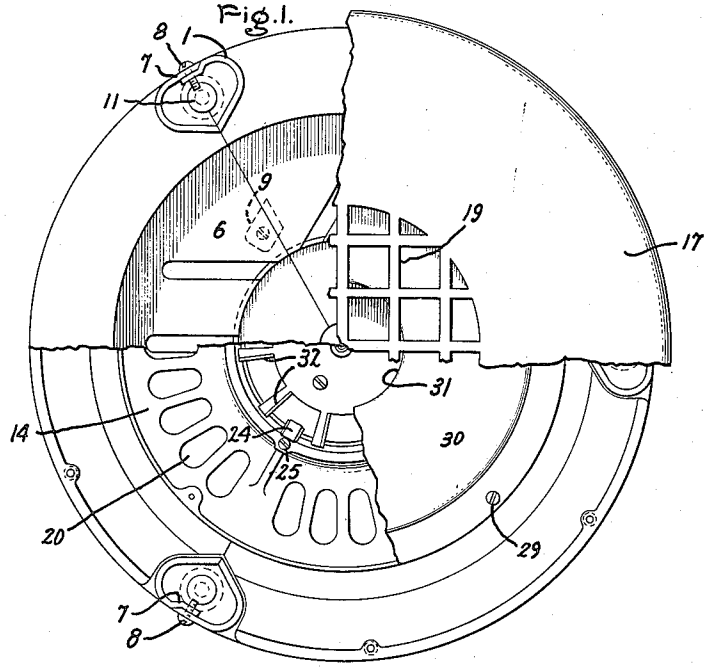
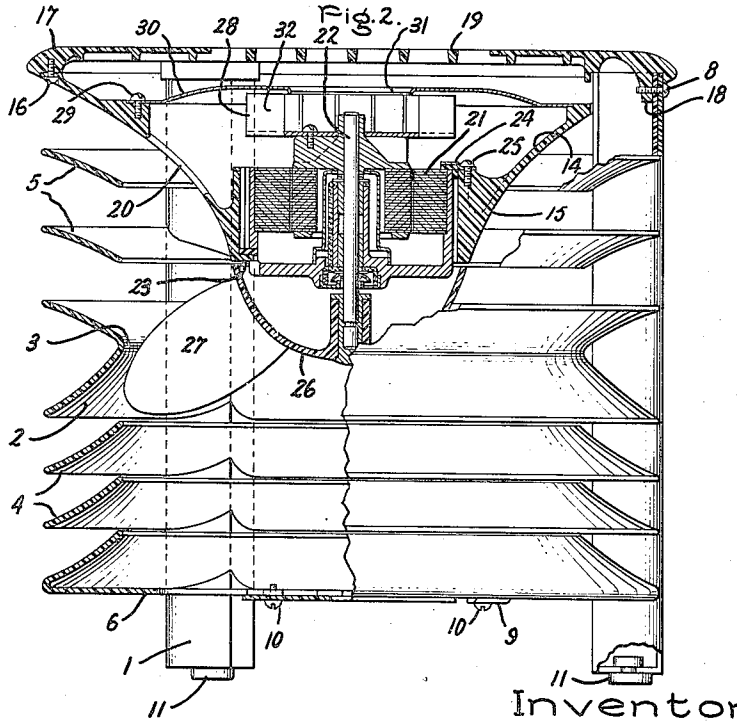


Fig. 2.



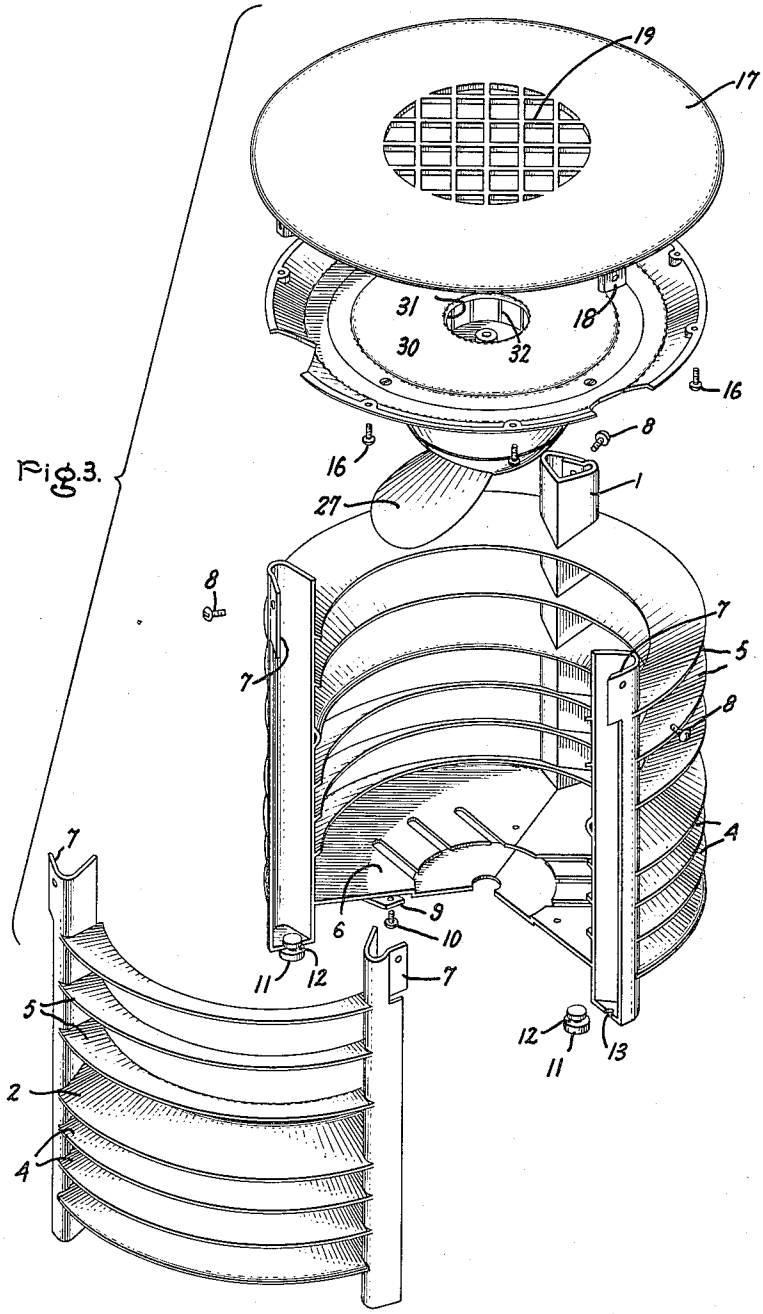
Inventor:
George J. Reisch,
by Sheridan & Ross
His Attorney.

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Fig. 3.



Inventor:
George J. Reisch,
by Theodore Bros
His Attorney.

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RADIAL FLOW ELECTRIC FAN

George J. Reisch, Devon, Conn., assignor to General Electric Company, a corporation of New York

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4 Claims. (Cl. 230—259)

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The present invention relates to radial flow electric fans of the type adapted to be placed on the floor in a room and to distribute air radially in all directions.

The object of the invention is to provide an improved construction wherein the structure comprises a standard which may be fabricated from sections to provide louvres for directing air flow, an orifice for efficient air flow and a deflector supported by the standard and which carries an electric fan and air circulating means driven thereby.

For a complete understanding of the invention and its advantages, attention is directed to the following specification and to the claims appended thereto.

In the drawing wherein I have illustrated one embodiment of the invention, Fig. 1 is a top plan view of the fan with parts broken away to show those beneath; Fig. 2 is a side elevation partly in section and partly broken away of the construction shown in Fig. 1, and Fig. 3 is an exploded view of the several parts of the fan.

The fan comprises generally a standard and a motor driven fan unit supported by the standard.

The standard comprises a plurality of posts 1, three being shown in the present instance, united by a central annular wall 2 which is V-shaped in cross section and defines a central orifice 3, and by lower inlet louvres 4 and upper outlet louvres 5. The louvres 4 are spaced with respect to wall 2 and with each other to define annular inlet passages for directing air to orifice 3 and louvres 5 are spaced with respect to wall 2 and each other to define annular outlet passages for directing air flow from orifice 3. The lowermost of the inlet louvres is provided with a wall 6 which forms a bottom wall for the fan and substantially closes the standard at its lower end.

The standard is preferably formed from a plurality of sections, the number of sections corresponding to the number of posts 1. Referring particularly to Fig. 3, each section comprises a half post connected by sections of the wall 6 and louvres 4 and 5. The half posts are provided with projecting ears 7 at their upper ends which, when the half posts are assembled, overlap and receive screws 8 which hold the half posts together at the top. Formed integral with each bottom louvre section is a segment of bottom wall 6. The segments are provided with projecting tongues 9 which overlap adjacent segments and receive screws 10 for fastening the standard sections together at the bottom. At the bottom of the posts

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are supporting feet 11. They may be held in place by annular grooves 12 surrounding them which fit into notches 13 at the bottom of the post halves. When two post halves are assembled, notches 13 form a hole, the parts of the feet above and below the annular grooves 12 being positioned above and below the wall surrounding the holes. This provides a simple and reliable way for attaching the feet to the posts. By making the standard from a plurality of sections each carrying a half post, I may with advantage mold the sections from a suitable molding compound. This enables the sections to be made at low cost and at the same time provides a standard which is pleasing and attractive in appearance.

Supported on the upper ends of the posts is a deflector 14 which provides a curved downwardly facing deflector surface 15 which projects down within the outlet louvres 5. At its upper edge, deflector 14 is connected by screws 16 to a top wall 17. Top wall 17 is provided with ears 18 which fit down inside the posts and are attached to the posts by the screws 8, as shown clearly in Fig. 2. At the central portion of top wall 17 are openings which form a grill 19 for flow of air. In the wall of the curved deflector are spaced openings 20 for flow of air from inside the deflector outward.

Mounted inside deflector 14 is an electric motor 21. The shaft 22 of motor 21 is vertical. The motor is supported on lugs 23 at the lower end of deflector wall 14 and is held in place by clips 24 and screws 25. On the lower end of shaft 22 is a dome 26 which carries a fan blade 27. Dome 26 has a contour such that it blends in with the surface of deflector 14. In the present instance, a single fan blade is shown. However, the dome may carry one or more fan blades. The fan blade is positioned in orifice 3 and operates to effect flow of air to the orifice from below and away from the orifice from above, the air being guided to the orifice by louvres 4, and its discharge from the orifice being guided by louvres 5. On the upper end of shaft 22 is a radial flow fan 28 which receives air at its central portion and discharges it radially outward. Positioned over fan 28 and held in place by screws 29 is a cover 30 which has a central orifice 31 which defines the inlet passage to fan 28. The veins of the fan are indicated at 32. Air discharged from the fan is guided by cover 30 and directed outward through orifices 20 where it meets the air flow effected by fan blade 27. Thus the air flow from the two fans is mingled and directed outwardly by the louvres 5.

The operation of the fan will be clear from the description already given, the fan blade 27 when rotating effecting flow of air up between louvres 4 through the orifice and out between louvres 5 and the fan 28 effecting flow of air in through orifice 31 and out through orifices 20 where it mingles with the flow from blade 27.

In view of its simple construction, a fan embodying my invention may be manufactured at low cost and may be made relatively light in weight. At the same time by reason of the provision of air flow producing means on each end of the motor shaft, an efficient, well-distributed flow of air to a room is produced.

What I claim as new and desire to secure by Letters Patent of the United States is:

1. A radial flow electric fan comprising a downwardly facing curved annular deflecting wall having circumferentially spaced discharge ports, an electric motor mounted within said deflecting wall with its shaft vertical, a radial flow fan on the upper end of said shaft, a cover carried by the deflecting wall which defines an opening for flow of air to said radial fan and a wall for directing air from the fan to said discharge ports, a fan blade carried by the lower end of said shaft, and a standard for supporting said deflecting wall comprising an annular wall which defines an orifice in which the fan blade rotates, inlet louvres for directing air to the fan blade from below the orifice and outlet louvres for directing air from the fan blade radially outward, said outlet louvres serving also to direct the air discharged from said ports.

2. A standard for a radial flow electric fan comprising vertical tubular posts, an annular wall which connects the posts between their ends and defines an orifice for flow of air, annular louvres connecting the posts below said annular wall which define passages for directing air flow toward said orifice, and annular louvres connecting said posts above said annular wall to define passages for directing air flow away from said orifice, said standard comprising vertical sections, and each vertical section comprising one-half post section with a wall section and louvre sections connecting them, and means connecting adjacent half post sections together.

3. A radial flow electric fan comprising a downwardly facing curved annular deflecting wall having circumferentially spaced discharge ports, an electric motor mounted within said deflecting wall with its shaft vertical, a radial flow fan on the upper end of said shaft, a cover carried by the deflecting wall which defines an opening for flow of air to said radial fan and a wall for directing air from the fan to said discharge ports, a fan blade carried by the lower end of said shaft, and a standard for supporting said deflecting wall comprising an annular wall which defines an orifice in which the fan blade rotates, inlet louvres for directing air to the fan blade from below the orifice and outlet louvres for directing air from the fan blade radially outward, said outlet louvres serving also to direct the air discharged from said ports, and said standard being formed from united arcuate vertical sections, each of which comprises a half post with an orifice defining wall section and louvre sections connecting adjacent half post sections together.

4. In a radial flow electric fan, a standard comprising vertical tubular posts, an annular wall V-shaped in cross section which connects the posts between their ends and defines an orifice for flow of air, annular louvres connecting the posts below said annular wall which define passages for directing air flow toward said orifice, annular louvres connecting said posts above said annular wall to define passages for directing air flow away from said orifice, said standard being formed from united vertical sections, and each vertical section comprising one half post section with a wall section and louvre sections connecting them, means connecting adjacent half post sections together, a top wall carried by said posts, and electric motor driven means carried by said top wall positioned within said standard for effecting flow of air.

GEORGE J. REISCH.

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