F. J. COLLINS.

VENTILATING FAN.

APPLICATION FILED JUNE 30, 1915.

1,178,575. Patented Apr. 11, 1916.

Fig 1

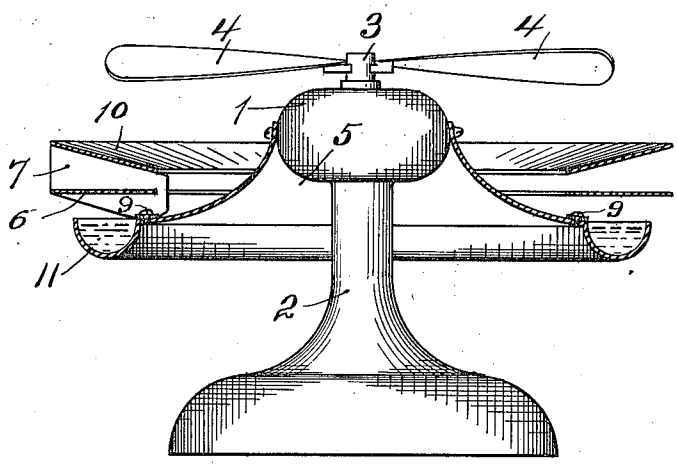


Fig 2

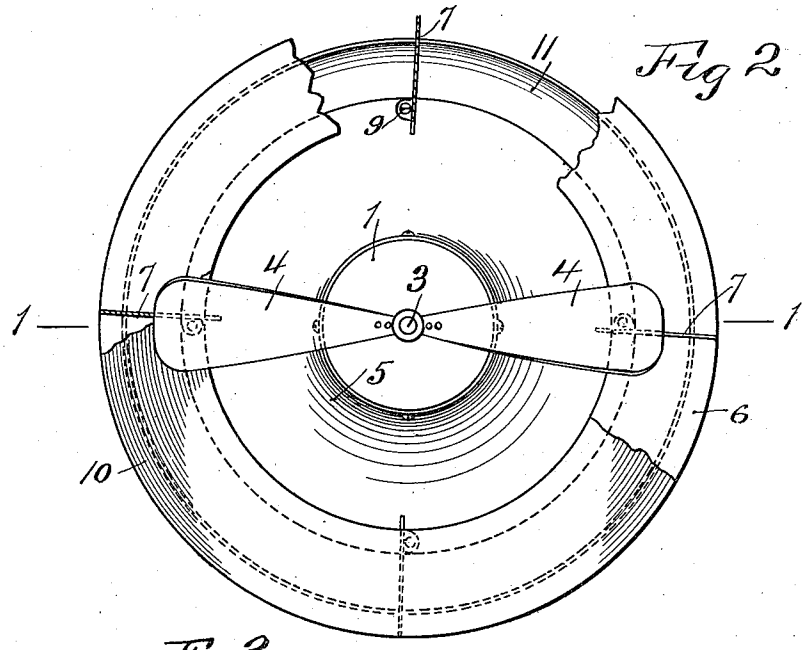
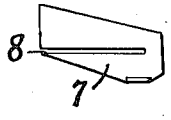


Fig 3



WITNESSES:

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VENTILATING-FAN.

1,178,575. Specification of Letters Patent. Patented Apr. 11, 1916.

Application filed June 30, 1915. Serial No. 37,375.

To all whom it may concern:

Be it known that I, FRED J. COLLINS, a citizen of the United States, residing at Kansas City, in the county of Wyandotte and State of Kansas, have invented a certain new and useful Improvement in Ventilating-Fans, of which the following is a specification.

My invention relates to improvements in ventilating fans.

The object of my invention is to provide a ventilating fan by which a thorough circulation of air may be obtained in all parts of a room and without requiring the fan to be oscillated or revolved in the usual manner.

A further object of my invention is to provide novel means for moistening the air in a room.

Still another object of my invention is to provide a novel deflector mechanism adapted to be attached to a fan.

The novel features of my invention are hereinafter fully described and claimed.

In the accompanying drawings which illustrate the preferred embodiment of my invention, Figure 1 is a view of my improved ventilating fan shown partly in vertical section and partly in elevation, the section being taken on the line 1—1 of Fig. 2. Fig. 2 is a top view of the same, partly broken away. Fig. 3 is a side elevation of one of the radial plates which support the annular deflecting plates.

Similar reference characters designate similar parts in the different views.

1 designates an annular casing which incloses the usual field magnets and armature and which is supported by suitable stand 2.

3 designates a vertical armature shaft rotatably mounted in the casing 1 and having secured to it the usual blades 4 arranged to force the air upwardly, when the shaft 3 rotates in one direction, and downwardly when the shaft is rotated in the opposite direction. Preferably the blades 4 are arranged so as to force the air downwardly against an annular flaring deflector 5, which embraces and is supported by the casing 1, and which is concentric with the shaft 3. Preferably the upper or outer side of the deflector 5 is concavously curved, as shown, whereby the air, which is forced downwardly against it by the revolving blades 4, will be forced laterally outwardly. Some of the air so forced will, after it has passed the outer edge of the deflector 5, pass downwardly toward the floor. In order that some of the deflected air may pass horizontally from the deflector, I provide a horizontal annular deflecting plate 6 which is concentric with and is disposed above and at a distance of approximately one half inch apart from the outer edge of the deflector to which it may be secured and supported by four radial plates 7, one of which is shown in Fig. 3. The plates 7 are each provided with a horizontal slot 8 in which the plate 6 is mounted. Screws 9 respectively secure the plates 7 to the upper side of the deflector 5. For the purpose of guiding some of the deflected air upwardly, I provide an upwardly and outwardly inclined annular deflecting plate 10, which is secured to the upper edges of the plates 7, and which is concentric with and spaced apart from and disposed above the deflecting plate 6. For moistening the water as it is being deflected, there is provided an annular water receptacle 11, which may or may not be integral with the deflector 5, and which is disposed concentrically therewith at the outer edge thereof and below the deflecting plate 6.

In the operation of my invention, when the shaft 3 is rotated so as to force the air downwardly, the air so forced will strike the deflector 5 and will be deflected thereby outwardly in all directions. Part of the air will pass downwardly to the floor, after passing over the water receptacle 11; some of the air will pass horizontally outwardly, being so guided by and between the plate 6 and the water in the receptacle 11; and some of the air will be deflected upwardly and outwardly by the deflecting plate 10.

By means of the construction just described, the air will be kept in constant circulation in all parts of the room. This will be effected without any unequal distribution of the air, such as causes drafts when the circulation is effected by fans which can only force the air in one general direction, or which must be oscillated or revolved in order to force air in different directions. My invention effects better circulation of the air, and without requiring any part of the current, which operates it, to be used

for oscillating or revolving it, than can be obtained with the usual stationary, oscillating or revolving fans.

I do not limit my invention to the structure shown and described, as modifications, within the scope of the appended claims, may be made without departing from the spirit of my invention.

What I claim is:—

1. In a ventilating fan, a vertical rotary shaft, an annular deflector concentric therewith, means actuated by said shaft for forcing air against said deflector, and an annular water receptacle disposed concentrically with and adjacent to the outer edge of said deflector.

2. In a ventilating fan, a vertical rotary shaft, an annular flaring deflector concentric therewith and having a concavously curved outer side, means actuated by said shaft for forcing air against said curved outer side, and an annular water receptacle disposed concentrically with said deflector and adjacent to the outer edge thereof.

3. In a ventilating fan, a vertical rotary shaft, an annular flaring deflector concentric therewith, means actuated by said shaft for forcing air against the outer side of said deflector, and a deflecting ring, through which said deflector extends disposed concentrically with said deflector and spaced apart from the outer edge thereof.

4. In a ventilating fan, a vertical rotary shaft, an annular flaring deflector concentric therewith, means actuated by said shaft for forcing air against the outer side of said deflector, and an upwardly and outwardly inclining annular plate concentric with said deflector and disposed above and spaced apart from the outer edge thereof.

5. In a ventilating fan, a vertical rotary shaft, an annular flaring deflector concentric therewith, means actuated by said shaft for forcing air against the outer side of said deflector, and a horizontal annular plate concentric with and disposed above and spaced apart from the outer edge of said deflector.

6. In a ventilating fan, a vertical rotary shaft, an annular flaring deflector concentric therewith, means actuated by said shaft for forcing air against the outer side of said deflector, an upwardly and outwardly inclined annular plate concentric with and spaced above and apart from the outer edge of said deflector, and a horizontal annular plate concentric with and disposed between and spaced apart from said deflector and said inclined plate.

7. In a ventilating fan, a vertical rotary shaft, an annular flaring deflector concentric therewith, means actuated by said shaft for forcing air against the outer side of said deflector, an annular water receptacle concentric with and adjacent to the outer edge of said deflector, and a deflecting ring concentric with and disposed above and spaced apart from said ring.

8. In a ventilating fan, a vertical rotary shaft, an annular flaring deflector concentric therewith, means actuated by said shaft for forcing air against the outer side of said deflector, an annular water receptacle concentric with and adjacent to the outer edge of said deflector, and an upwardly and outwardly inclined annular plate concentric with and disposed and spaced apart from said water receptacle.

9. In a ventilating fan, a vertical rotary shaft, an annular flaring deflector concentric therewith, means actuated by said shaft for forcing air against the outer side of said deflector, an annular water receptacle concentric with and adjacent to the outer edge of said deflector, and a horizontal annular plate concentric with and disposed above and apart from said water receptacle.

10. In a ventilating fan, a vertical rotary shaft, an annular flaring deflector concentric therewith, means actuated by said shaft for forcing air against the outer side of said deflector, an annular water receptacle concentric with and adjacent to the outer edge of said deflector, an upwardly and outwardly inclined annular plate concentric with and disposed above and spaced apart from said water receptacle, and a horizontal annular plate concentric with and disposed between and spaced apart from said water receptacle and said annular inclined plate.

11. In a ventilating fan, an annular flaring deflector, and an annular water receptacle concentric with and secured to said deflector adjacent to the outer edge thereof.

12. In a ventilating fan, an annular flaring deflector, and a horizontal annular plate concentric therewith and disposed above and spaced apart from the outer edge thereof.

13. In a ventilating fan, an annular flaring deflector, and an upwardly and outwardly inclined annular plate concentric therewith and disposed above and spaced apart from the outer edge thereof.

14. In a ventilating fan, an annular flaring deflector, an upwardly and outwardly inclined annular plate concentric therewith and disposed above and spaced apart from the outer edge thereof, and a horizontal annular plate concentric with and disposed between and spaced apart from said inclined annular plate and said deflector.

15. In a ventilating fan, an annular flaring deflector, an annular water receptacle concentric with and adjacent to the outer edge thereof, and an upwardly and outwardly inclined annular plate concentric with and disposed above and spaced apart from said water receptacle.

16. In a ventilating fan, an annular flaring deflector, an annular water receptacle

concentric with and adjacent to the outer edge thereof, and a horizontal annular plate concentric with and disposed above and apart from said water receptacle.

17. In a ventilating fan, an annular flaring deflector, an annular water receptacle concentric with and adjacent to the outer edge thereof, an upwardly and outwardly inclined plate concentric with and disposed above and spaced apart from said water receptacle, and a horizontal annular plate concentric with and disposed between and spaced apart from said inclined annular plate and said water receptacle.

18. A ventilating fan provided with means for forcing a current of air downwardly, deflecting means by which the current so forced is deflected laterally in all directions, and means for moistening the air so deflected.

In testimony whereof I have signed my name to this specification.

FRED J. COLLINS.