Sept. 29, 1953 B. SEGALMAN 2,653,757

DIFFUSER FOR VENTILATING FANS

Filed Aug. 9, 1950

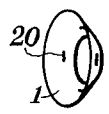


Fig. 1

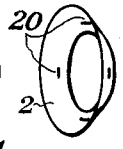


Fig. 2

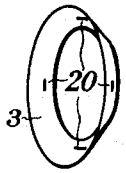


Fig. 3

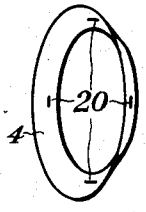


Fig. 4

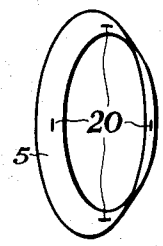


Fig. 5

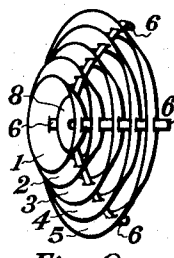


Fig. 6

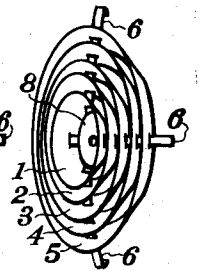


Fig. 7

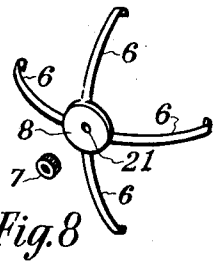


Fig. 8

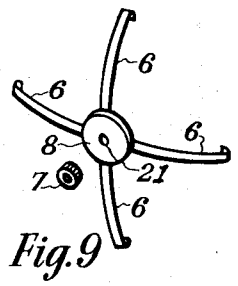


Fig. 9

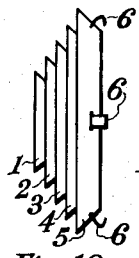


Fig. 10

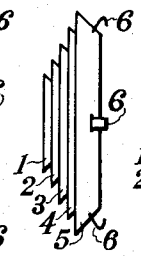


Fig. 11

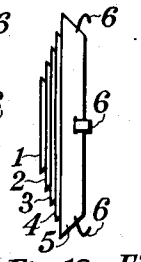


Fig. 12

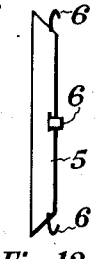
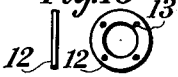


Fig. 13

Fig. 14

Fig. 15



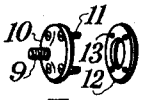


Fig. 16

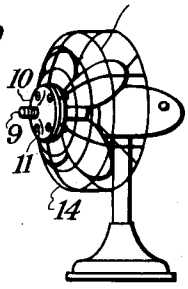


Fig. 17

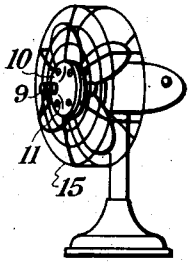


Fig. 18

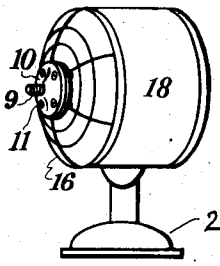


Fig. 19

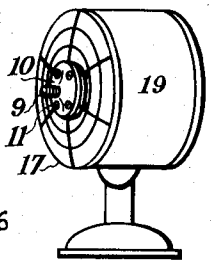


Fig. 20

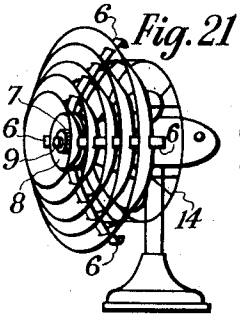


Fig. 21

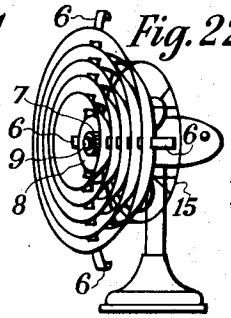


Fig. 22

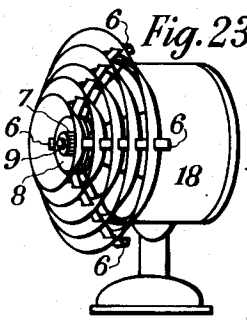


Fig. 23

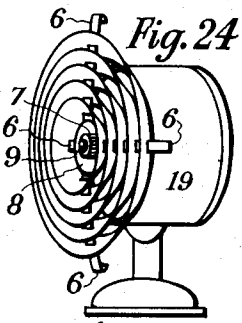


Fig. 24

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DIFFUSER FOR VENTILATING FANS

Bernard Segalman, Brooklyn, N. Y.

Application August 9, 1950, Serial No. 178,370

3 Claims. (Cl. 230—274)

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An important object of this invention is to provide an accessory having deflectors which are held together as one unit by flexible spring arms. This accessory when attached to the guard of a fan or heater will cause the cool air of a fan or the warm air of a heater to be spread out and diffused instead of being forced out in a straight blast which is, many times, annoying and has ill effects on the person in direct range.

Another object is to provide an accessory or attachment comprising annular deflectors, which may be of any number, and a supporting member therefor, with three or more flexible spring arms which not only hold the annular deflectors, but hold the entire accessory taut to the fan or heater guard, fastened by means of a center nut, and also enable the accessory to be easily fitted to the guard of any fan or heater regardless whether guard is rounded or flat.

Another object is to provide an accessory which can be used to beautify or freshen up the appearance of any old fan or old heater. By manufacturing the accessory in colorful plastic for fans, or light metal for heaters, it can be attached to the guards of old heaters and old fans which may have rusted or deteriorated and thus make the electric unit look new again. It may be made of other material than metal or plastic.

Other objects and advantages are made clear in the following description and the novel features are defined in the appended claims. While the drawings show a preferred embodiment of the invention, minor alterations in structure can, of course, be made without basically changing any of the characteristics.

On the drawings:

Figures 1, 2, 3, 4 and 5 each shows one of the member of the deflector assembly. This does not limit the accessory to five members; it may be made up of any number, depending on the size of the guard on the heater or fan for which it is designed. The Figures 1, 2, 3, 4 and 5 have slots **20** cut in them, to receive the flexible spring supporting arms **6**, shown in Figures 6, 7, 8, 9, 10, 11, 12 and 13.

Figures 6 and 7 are perspective views of the entire deflector assembly in two different positions of adjustments. Figure 6 shows how the assembly looks when the spring, tension, arms **6** hold it in a rounded arc form, so it can be attached to a rounded shaped guard of a fan or heater. Figure 7 shows how the assembly looks when it is depressed or flattened against the tension of the spring supporting arms **6**, and in this way can be attached to a flatter shaped guard of a fan or heater.

Figures 8 and 9 are perspective views of the supporting member in different adjustments. Figure 8 shows the spring, tension arms **6** in a rounded arc form, similar to its form in Figure 6.

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Figure 9 shows the spring, tension arms **6** in a depressed, flattened shape similar to its use in Figure 7. Figures 8 and 9 show a center unit or hub **8**, which holds the spring, tension arms **6** together. Center unit **8** has a hole **21** in its center. The screw stud **9**, shown in Figures 14 and 16 through 24 inclusive, fits into this hole **21**, shown in Figures 8 and 9. The nut **7**, which is preferably a hand nut, shown in Figures 8 and 9, is made up onto the screw stud **9**, Figures 21 through 24 inclusive, and thus holds the entire deflector attached to the guard of a heater or fan, as shown in Figures 21 through 24 inclusive.

Figures 10, 11, 12 and 13 are side views of the deflector assembly in different positions of adjustment, ranging from a rounded arc shape to a flattened shape to fit whatever shape the guard of the fan or heater happens to be.

Figures 14, 15 and 16 illustrate the member which is to be permanently installed onto the guard or protecting grill of a fan or heater. This member is made up of 2 parts, **10** and **12**. Figure 14 shows a side view and a front view of the unit **10** in which the screws are **11**. There is a threaded projection **9** which can be called the threaded stud. Figure 15 illustrates the side view and front view of the unit **12**, in which the number **13** designates the female threaded screw holes and these **13** are to accommodate the screws number **11** in Figure 14. The quantity of screws **11**, or threaded holes **13**, can be two or more. Figure 16 is a perspective drawing of units **10** and **12**. When units **10** and **12** are assembled as shown on the guards of fans, Figures 17 and 18, and on the guards of heaters, Figures 19 and 20, they are attached permanently to the approximate center area of the wire guard in front of the blades of the fan or heater.

In Figures 17, 18, 19 and 20, the units **10** and **12** make a head and are screwed together onto the front wire guard of a fan or heater, with unit **10** on the front side of the front wire guard, and unit **12** on the back side of the front wire guard. Unit **10** with its center threaded stud **9** is firmly fastened to the front guard by use of the screws **11** going into the threaded holes **13** of the unit **12** which is on the back side of the front wire guard. The units **10** and **12** are placed in such position that the wire guard between them does not hinder or obstruct the driving of the screws **11** of unit **10** into the threaded holes **13** of unit **12**.

Figure 17 is a perspective view of an arc-shaped or rounded front wire guard of an electric fan, illustrating the unit **10**, installed on the wire guard **14**. Unit **10** has a center threaded stud **9**.

Figure 18 is a perspective view of a rather flat-shaped front wire guard of an electric fan, showing the unit **10** installed on the front wire guard **15**. Unit **10** has a center threaded stud **9**.

Figure 19 is a perspective view of an arc or rounded front wire guard of an electric heater 18, showing the unit 10 installed on the front wire guard 16. Unit 10 has a center threaded stud 9.

Figure 20 is a perspective view of a rather flat shaped front wire guard of an electric heater 19, showing the unit 10 installed on the front wire guard 17. Unit 10 has a center threaded stud 9.

Figure 21 illustrates the deflector assembly similar to that shown in Figure 6, attached to an arc or rounded shaped wire guard of an electric fan similar to that in Figure 17. This deflector is attached by placing it onto the threaded stud 9, and fastened by the hand nut 7, as illustrated in Figure 21.

Figure 22 illustrates the deflector assembly similar to that shown in Figure 7, attached to an almost flat shaped wire guard of an electric fan similar to that in Figure 18. This deflector assembly is attached by placing it onto the threaded stud 9, and fastened by the hand nut 7, as illustrated in Figure 22.

Figure 23 illustrates the deflector assembly similar to that shown in Figure 6, attached to an arc or rounded shaped wire guard of an electric heater, similar to that in Figure 19. This deflector is attached by placing it onto the threaded stud 9, and fastened by the hand nut 7, as illustrated in Figure 23.

Figure 24 illustrates the deflector, similar to that shown in Figure 7, attached to an almost flat shaped wire guard of an electric heater similar to that shown in Figure 20. This deflector is attached by placing it onto the threaded stud 9, and fastened by the hand nut 7, as illustrated in Figure 24.

Figures 21 through 24 inclusive illustrate that this deflector assembly can be used on various shaped wire guards of fans or heaters, whether they have guards which are flat, slightly curved in an arc, very markedly curved in an arc, whether the guards are made of horizontal, italic, vertical or curved shaped wire, whether they are a grill or grating or wire type of guard.

The deflector assembly is made up of annular units of any number, and are shown here as five units 1, 2, 3, 4, 5, each having the form of a circular flaring ring of smaller diameter across the inner end and larger diameter across the outer end. These rings may be either conical or slightly curved on their outer faces. Element 1 is the smallest and element 5 is the largest, the others varying progressively in size. More than 5 elements may be used to make the deflector larger in size. These rings are connected by a supporting member having flexible spring arms 6, and these arms may be 3 or more. These spring arms 6 supply the tension which holds the deflector assembly tightly to the guard, in conjunction with the center hand nut 7.

The rings of the deflector assembly are concentrically disposed, as shown in Figures 6 and 7, 10 to 13 inclusive, with the smallest in the center of the group, and the largest on the outside, the others in the order of size being in between and all flaring in the same outward direction.

When the deflector assembly is secured to the front of the guard by screwing the hand nut 7 onto the threaded stud 9, the smaller ends of the units or rings are closest to the blades of the fan, air from the fan, or heated air from the heater is impelled through the deflector assembly and diffused or spread out, rather than blasted in one straight beam.

The spring arms 6 of the support are radially arranged and are held together on a central hub 8. The support is mounted by means of a threaded stud 9 having a head 10, in conjunction with a clamping ring 12. The head has openings for screws 11 by which the head 10 and the ring 12 are joined together on either side of the front guard of a heater or fan. The head with its threaded stud 9 is on the outside. The ring 12 has threaded opening 13 to receive the screws 11. This head and ring can thus be secured to the center of the guards 14, 15, 16 or 17. This remains on the guard of the fan or heater as a permanent installation. The deflector assembly can be attached or removed at will by the hand nut 7. The fan guard 14 is of the usual open wire construction, and is attached to the main casing for the fan motor, indicated at 18 and 19 in Figures 19, 20, 23 and 24. This casing may, if desired, support an electric heater with or without a fan.

Having described my invention, I claim:

1. A diffuser assembly for an electric fan having a guard in front, comprising concentric circular rings, all flaring in the same outward direction, a supporting member having three or more radiating spring arms engaging said rings, and means for affixing the member to the middle of the guard for said fan, said rings having slots through which said radiating spring arms extend, the spring arms being flexible so that, by the bending of the said spring arms, the diffuser assembly can be given a form that is either flat, slightly curved in an arc form, or greatly curved into a marked curve or arc, so as to fit the shape of the guard for said fan.

2. A diffuser assembly for an electric fan having a guard, the assembly comprising concentric circular rings, all flaring in the same outward directiton, a supporting member having three or more radiating spring arms engaging said rings, said member forming a central hub with a central opening, a central head having a bolt thereon to be secured to the guard, said opening in said central hub receiving said bolt to mount the diffuser on the guard, and a fastening nut on said bolt.

3. A diffuser assembly for an electric fan, comprising concentric circular rings, all flaring in the same outward direction, the fan having a guard in front, a supporting member for said assembly having three or more radiating arms engaging said rings through slots cut in said rings, said radiating arms being adapted to be bent to a curve corresponding to the curvature of said guard, said supporting member forming a central hub with a central opening, and a mounting stud to be installed on the guard, said diffuser assembly being attached to said guard through said hub and said central opening receiving said stud.

BERNARD SEGALMAN.

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