Sept. 10, 1929. W. O. FREEMAN 1,728,117

AIR DISTRIBUTING DEVICE FOR ELECTRIC FANS

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Fig. 1.

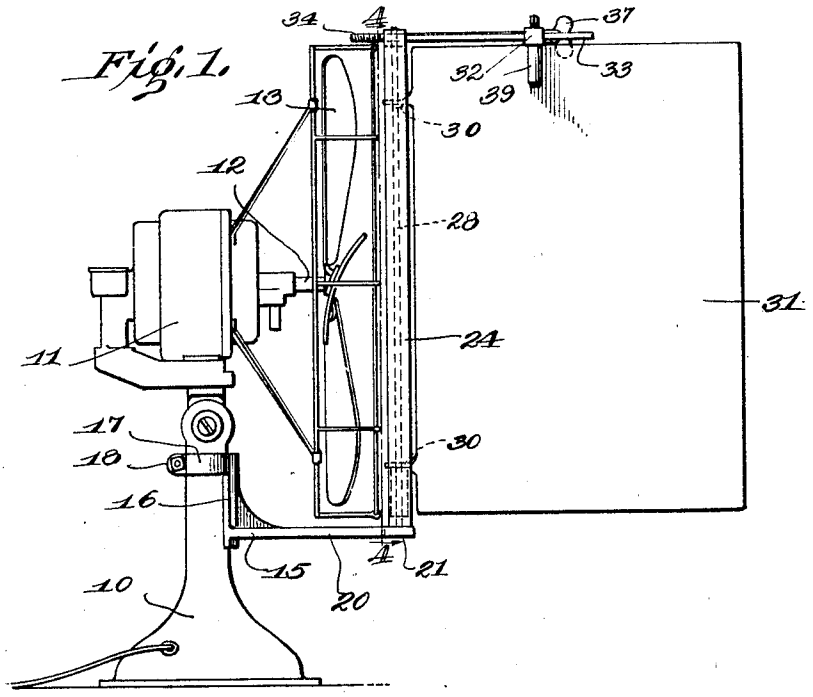


Fig. 2.

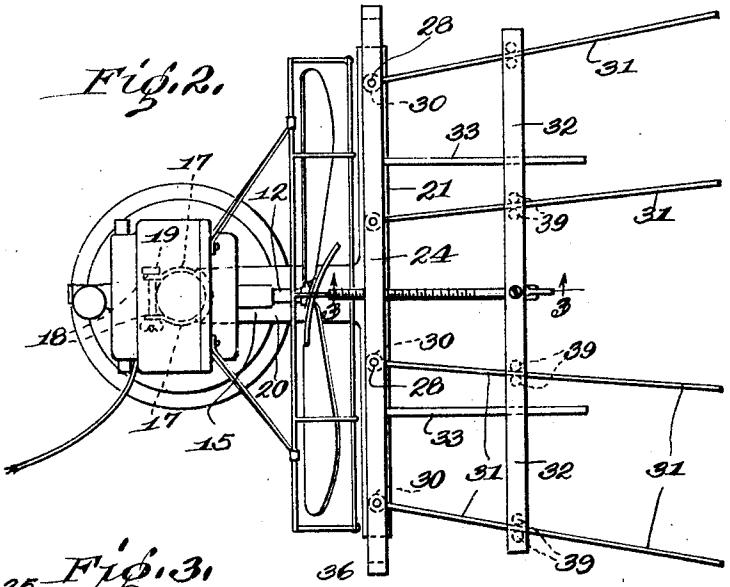
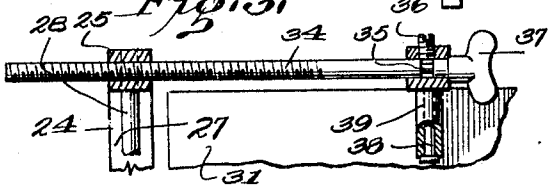


Fig. 3.



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Fig. 4.

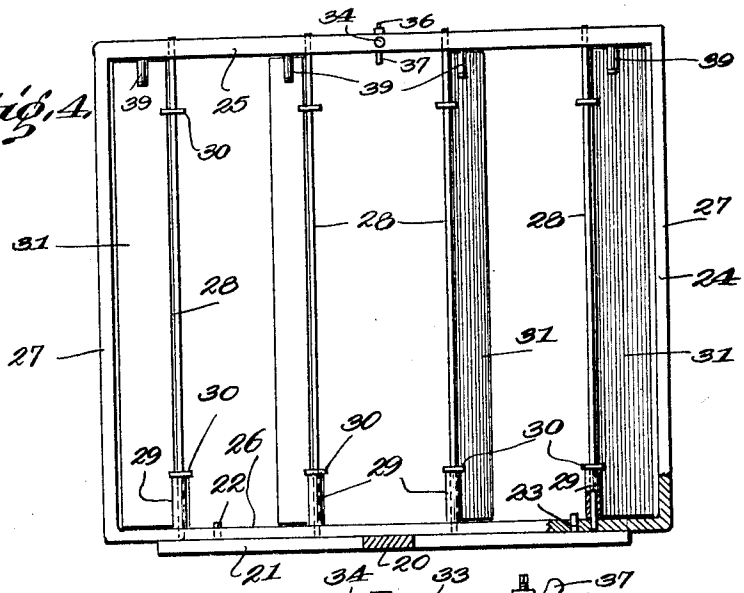
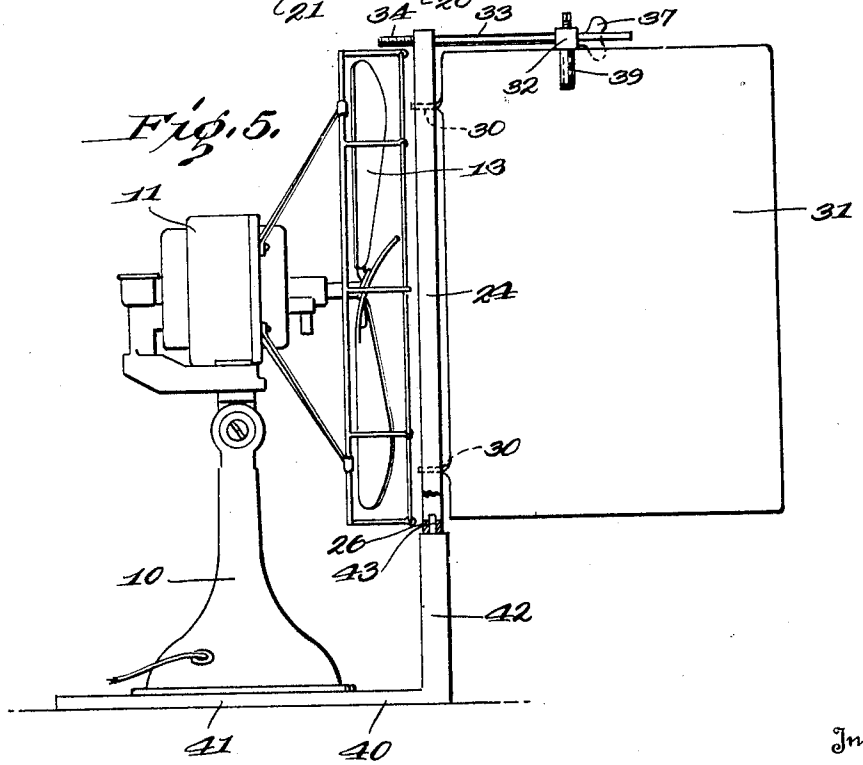


Fig. 5.



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Patented Sept. 10, 1929. 1,728,117

UNITED STATES PATENT OFFICE.

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AIR-DISTRIBUTING DEVICE FOR ELECTRIC FANS.

Application filed August 31, 1927. Serial No. 216,751.

The present invention relates to an air current spreading attachment for electric fans, and aims to provide a novel and improved device of this character which may be conveniently associated with an electric fan for efficiently distributing air currents from a fan over a relatively greater area than that of the fan itself.

Another object of the invention is the provision of a plurality of vertically arranged deflectors or blades adjustably carried by a frame attached to the fan with said blades or deflectors arranged in the air currents of the fan at angles to each other for spreading the air currents to distribute the same over a large space.

A further object of the invention is to provide a device as stated above having the edges of the deflectors or blades adjacent the fan pivotally connected to the frame, while a bar slidably engages the upper edges of the blades or deflectors and is adjustably connected to the frame and arranged so that when said bar is moved with relation to the frame, the angles of said blades or deflectors with relation to each other will be changed, thus increasing or decreasing the spreading of air currents from the fan.

It is also an object of the invention to provide a device as above indicated, which is simple and substantial in construction, which can be manufactured economically, and which will be thoroughly efficient and practical in use.

With the foregoing and other objects in view, which will be apparent as the description proceeds, the invention resides in the construction and arrangement of parts, as hereinafter described and claimed, it being understood that changes can be made within the scope of what is claimed, without departing from the spirit of the invention.

The invention is illustrated in the accompanying drawings, wherein:

Figure 1 is a side elevation of an electric fan, showing my improved spreader attachment associated therewith,

Figure 2 is a top plan of the same,

Figure 3 is a fragmentary section taken on line 3—3 of Figure 2,

Figure 4 is a vertical section taken on line 4—4 of Figure 1, and

Figure 5 is a side elevation of a fan and my improved device, showing a modified manner of associating the device with the fan.

Referring to the drawings, the numeral 10 designates the base or support of an electric fan which supports an electric motor 11 which in turn has mounted on the rotatable shaft 12 thereof a fan 13 comprising a plurality of blades.

In carrying out my invention, the numeral 15 designates a bracket which is provided with an arcuate portion 16 which engages the curved surface of the support 10 and a pair of arms 17 at the upper portion of said arcuate portion which engage about the support 10. The arms 17 have ears 18 thereon through which a bolt 19 extends for clamping said arms 17 about the support 10. The bracket 15 is what might be termed L-shaped and has provided on the free end of the portion 20 thereof a crossbar 21. On the upper face of the crossbar 21 is a pair of pins or pegs 22, which engage into openings 23 in the lower side of a rectangular frame 24. The bracket 15 is arranged so that the same will support the rectangular frame 24 in front of the fan 13.

The frame 24 comprises an upper and lower side 25 and 26 respectively and end sides 27. Extending between the upper and lower sides 25 and 26 is a plurality of rods 28, said rods being arranged in spaced parallel relation. On the rods 28 are sleeves 29 which form spaces and engage the lower of a pair of ears 30 carried by each of blades or deflectors 31. The ears 30 form means for pivotally connecting the blades or deflectors 31 to the rods 28, while the sleeves 29 form spacing means for supporting the blades or deflectors in proper position with relation to the frame.

Extending across the upper edges of the blades or deflectors 31 is a bar 32 which is provided with a pair of openings therein through which guide rods 33 carried by the upper side 25 of the rectangular frame 24 extend so as to slidably support the bar 32

in parallel sliding relation to the upper side 25 of the rectangular frame. A feed rod 34 is threaded in the upper side 25 of the rectangular frame 24 as clearly shown in Figure 3 of the drawings and extends through the bar 32. The feed rod has an annular groove 35 therein at the point where the same extends through the bar 32 into which a screw 36 extends for holding the feed screw against sliding movement within the bar 32, yet permitting said feed screw to be turned. On the end of the feed screw 34 extending through the bar 32 is arranged a head 37 which may be easily engaged for turning the feed screw in order to slide the bar 32 with relation to the rectangular frame.

Carried by the bar 32 and extending downwardly therefrom at each side of each blade or deflector 31 is a depending pin 38 which rotatably supports a roller 39 so as to permit easy movement of the bar 32 towards or away from the frame and thus prevent friction between the engaging portions of the bar with the blades or deflectors. By referring to Figure 2 of the drawings, it can be seen that the angles of the blades or deflectors 31 are arranged according to the position of the rollers 39 on the bar 32 and the position of the bar 32 with relation to the frame 24.

In Figure 5 of the drawings, I have illustrated a modified form of the invention whereby the rectangular frame 24 is supported by an angled plate 40. The angled plate 40 comprises a base portion 41 upon which the base or support 10 of the fan rests and an upstanding portion 42 which carries pins 43 similar to the pins or pegs 22 shown in the other form of my invention.

In operation, the air currents from the fan 13 are directed onto the blades or deflectors 31 which will spread the air currents so as to cause the same to cover a greater area and thus prevent to a great extent a direct draft. By turning the head 37 of the feed screw 34, the bar 32 is moved with relation to the rectangular frame 34 and the rollers 39 carried by the bar 32 will change the angles of the blades or deflectors with relation to each other for increasing the spreading action of the blades or for decreasing said spreading action. Thus, it can be seen that the device is constructed in a manner for varying the distributing or spreading of air currents from a fan.

Having thus described my invention, what I claim as new is:

1. An air distributing device in connection with an electric fan comprising a supporting frame in front of the blades of the fan, deflecting blades pivoted at their inner ends to said frame at opposite sides of the center thereof and those at one side extending in an opposite direction or angle from those at the other side, a cross-bar extending across all of the blades and movable bodily to and from the frame in parallel relation thereto, and means between the bar and blades for changing the angle of the latter on movement of said bar.

2. An air distributing device in connection with an electric fan comprising a supporting frame in front of the blades of the fan, deflecting blades pivoted at their inner ends to said frame at opposite sides of the center thereof and those at one side extending in an opposite direction or angle from those at the other side, a cross-bar extending across all of the blades and movable bodily to and from the frame in parallel relation thereto, means between the bar and blades for changing the angle of the latter on movement of said bar, and means connected to the frame and bar for holding said bar in adjusted position.

3. An air distributing device in connection with an electric fan comprising a supporting frame in front of the blades of the fan, deflecting blades pivoted at their inner ends to said frame at opposite sides of the center thereof and those at one side extending in an opposite direction or angle from those at the other side, a cross-bar extending across all of the blades and movable bodily to and from the frame in parallel relation thereto, means between the bar and blades for changing the angle of the latter on movement of said bar, and a screw connected to said bar and frame for holding said bar in adjusted position.

4. An air distributing device in connection with an electric fan comprising a supporting frame in front of the blades of the fan, a plurality of deflecting blades pivoted at their inner ends to said frame, a cross-bar extending across the blades and movable bodily to and from the frame in parallel relation thereto, a screw connected to said bar and frame for holding the bar in adjusted position, and outwardly extending rods projecting from the frame through the bar for guiding the latter in parallel relation to the frame.

5. An air distributing device in connection with an electric fan comprising a supporting frame in front of the blades of the fan, deflecting blades pivoted at their inner ends to said frame at opposite sides of the center thereof and those at one side extending in an opposite direction or angle from those at the other side, a cross-bar extending across all of the blades and movable bodily to and from the frame in parallel relation thereto, a screw connecting the bar to the frame for adjustment of the bar with relation thereto, and outwardly extending rods projecting from the frame through the bar for guiding the latter in parallel relation to the frame.

6. An air distributing device in combination with an electric fan, comprising a sup-

porting frame arranged in front of the blades of said fan, a plurality of deflecting blades pivotally carried by said frame, a bar extending across the upper ends of said blades and movable to and from the frame, depending pins carried by said bar at opposite sides of said blades for shifting the latter on movement of said bar, and means extending from the supporting frame for adjusting the bar in spaced parallel relation thereto.

7. An air distributing device in combination with an electric fan, comprising a rectangular frame arranged in front of the blades of the fan, a series of spaced vertical parallel rods carried by the frame, a plurality of deflecting blades having apertured lugs arranged upon said deflecting blades and having openings to receive said rods for pivotally connecting said blades thereto, and collars on the lower ends of the rods for supporting the lower apertured lugs; together with a bar extending across the upper ends of the blades and having depending pins for slidably connecting said bar to said blades, and means for adjusting the bar with respect to the supporting frame and blades.

8. An air distributing device in combination with an electric fan, comprising a frame arranged in front of the blades of said fan, a plurality of deflecting blades pivotally carried by said frame, a bar arranged above said blades and being slidably arranged for movement towards and away from the frame, depending pins carried by said bar and arranged on opposite sides of said blades, rollers rotatably carried by said pins for engaging opposite sides of said blades, a feed screw carried by said bar and threadedly engageable with said frame for adjusting the position of said bar with relation to the frame in order to change the angles of said blades with relation to each other.

WILLIAM O. FREEMAN.