

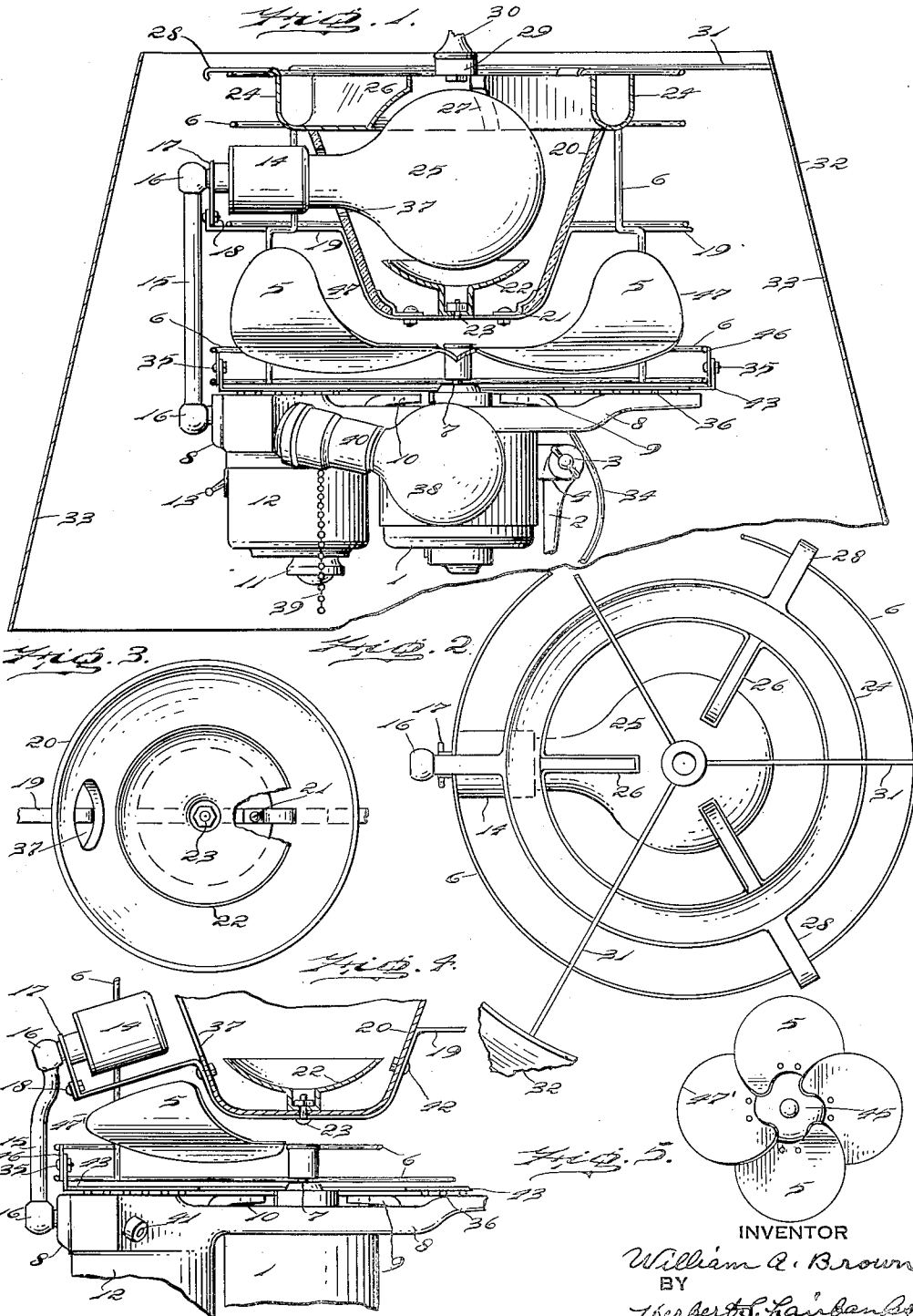
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LIGHTING AND AIR CONDITIONING DEVICE

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LIGHTING AND AIR CONDITIONING DEVICE

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8 Claims. (Cl. 240—2.16)

In my prior application Serial No. 64,240, of which the present application is a continuation in part, I have described and broadly claimed a novel lighting and air conditioning device for obtaining direct-indirect lighting, from a source of light in front of a motor driven variable speed propeller, in combination with direct-indirect air circulation, wherein said lighting and air circulating means are surrounded by a shade and so co-ordinated that flicker is eliminated to such an extent that it can be disregarded.

The object of the present invention is to provide a commercially practical construction having light rays originating from separate sources in front of and behind a motor driven variable speed propeller, with said sources of light and motor driven propeller surrounded by a shade, and so co-ordinated that flicker in any direction is eliminated to such an extent that it can be disregarded, regardless of the type of propeller or shade employed.

A further object of this invention is to provide a light transmitting reflector-diffuser between the lighting source in front of the propeller and the propeller.

Another object of the invention is to provide a compact, shallow, reflector-diffuser enclosing a light bulb, comprising a main diffuser portion with good light transmitting qualities and a co-operating secondary portion preferably with good reflecting qualities, and, in some cases, opaque in character to prevent heat penetration as well. Said diffuser in many instances is open ended to insure a positive air movement past the light bulb to prevent an accumulation of excess heat around the light bulb.

Another object of this invention is to provide suitable means to insure the proper evaporation of definite quantities of water for humidification purposes by utilizing the radiant heat of a high capacity light bulb mounted in front of the propeller and motor.

Another object of the invention is to provide an open ended shade surrounding the sources of light, light transmitting reflector-diffuser, propeller and motor.

Another important object of this invention is to provide various parts comprising the general assembly, of such shape, materials and co-ordination that the possibility of noise is reduced to a minimum, without impairing the effectiveness of the air circulating, light producing and humidifying means employed.

Another object of this invention is to provide a construction to permit the use of a propeller

having blades with portions deflected from the normal planes of said blades to form a space in which the light transmitting reflector-diffuser can be mounted to effect a substantial saving in height, without reducing the volume of air moved or limiting the size of the source of light in front of the propeller, which otherwise would be impossible to accomplish.

A further object of this invention is to provide a construction that will permit of the use of an opaque reflector between the source of light in front of the propeller and the propeller.

Another object of this invention is to provide a construction to permit the use of a propeller having overlapping blades, or one in which the blades do not overlap.

A further object of this invention is to provide a construction that will permit of the use of a method of controlling both sources of light so that the source of light behind the propeller may be turned on first and will automatically remain on during the operation of the source of light in front of the propeller.

Another object of this invention is to provide a construction that will permit of the use of controlling means whereby both sources of light may be turned on simultaneously, which may be advisable in some instances to compensate for and blot out ceiling flicker.

A further object of this invention is to provide a construction that will permit of the use of suitable insulating means adjacent to the source of light in front of the propeller, to prevent heat rays from said source of light, damaging the motor.

Other novel features of construction and advantage will hereinafter more clearly appear in the detailed description and the appended claims.

For the purpose of illustrating the invention, I have shown in the accompanying drawing typical embodiments of it, which, in practice, will give satisfactory and reliable results. It is, however, to be understood that the various instrumentalities of which my invention consists can be variously arranged and organized, and my invention is not limited to the exact arrangement and organization of these instrumentalities as herein set forth.

Figure 1 is a sectional elevation of a lighting and air conditioning device.

Figure 2 is a top plan view of a portion of the device, showing more particularly the relation of the humidifier to the shade, source of light in front of the propeller and guard.

Figure 3 is a top plan view of a portion of

the device, showing more particularly a reflector-diffuser.

Figure 4 is a sectional elevation of a portion of a modified form showing a different type of a propeller blade and reflector-diffuser.

Figure 5 is a top plan view of a preferred type of propeller.

Similar numerals indicate corresponding parts.

Referring to the drawing:

10 1 designates a motor which is preferably pivotally mounted on a support 2 and may be held in any desired permanent position, equivalent to a stationary mounting, by means of the tightening device 3 and the yoke 4. The special propeller 15 5, preferably with overlapping blades, is enclosed within the wire guard 6 and is mounted on the shaft 7 of the motor 1. The casting or stamping 8 to which the wire guard 6 is attached by any suitable means has two opposed ears 9 to which 20 the motor 1 is rigidly mounted by means of the studs 10. Said casting is provided with a round central opening to receive the top of the motor 1. 11 designates an insulated knob mounted on the shaft of a special variable speed rheostat concealed within the junction box section 12 of the casting 8, which is used to control the speed of 25 the motor 1. 13 is the lever of the switch, also concealed within the junction box 12, used to control the porcelain socket 14 that is held in permanent position on the wire guard 6 by means of the tube 15, the nozzles 16, the drilled steel flat piece 17, and the fastening devices 18 that hold 30 the flat piece 17 permanently in position on the main supporting member 19, which is welded to the wire guard 6.

The main supporting member 19 has the cone shaped open ended member 20, which may be opaque but which is preferably of translucent material such as glass, molded plastics, mica, 40 etc., rigidly attached to it by means of the supporting members 21, that are held in permanent position on the main support 19 by any suitable means. The co-operating member 22, which may be of metal, glass or any other suitable material, but which is preferably of electrolytically brightened aluminum, because of its permanent high 45 reflecting qualities and opaqueness, is attached to the support 19 by means of the fastening devices 23. A stamped or cast metal member 24, which is designed to hold at least one pint of 50 water to be evaporated by the radiant heat of the bulb 25, in front of the propeller 5, has the narrow inwardly projecting channel members 26 so arranged as to be in close proximity to the light 55 bulb 25 to insure rapid evaporation of the water and rests on the wire guard 6 by means of the ears 28 so that it can be instantly removed when not in use, such as in hot or warm weather when a very rapid air movement is desired and humidification is unnecessary. In cold weather when 60 artificial heat destroys the moisture in the air, a slight impedance in the free air circulated, which might be caused by the evaporating member 24, will not be noticed especially since the motor is 65 usually run at low speed in cold weather. The outwardly projecting ears 28 are so arranged as to permit relative adjustment of the evaporating member 24 with respect to the light bulb 25. The inwardly projecting channel members 26 are 70 preferably made of electrolytically brightened aluminum in order to minimize the possibility of reducing the effectiveness of the light bulb 25 and may or may not have the ends 27 curved to conform to the contour of the bulb 25. This is espe-

cially true where more than three such narrow channel members 26 are employed.

29 designates the regular punched washer used to receive the finial 30. It has a three way support 31 that rests on the top ring of the wire 5 guard 6 to allow instant removal of the shade 32 which encloses the entire assembly and which, in some instances, has high reflecting qualities on its inner surface 33. 34 designates the main lead wire that enters the hollow channel in the mem- 10 ber 8 that runs around the top of the motor 1 to emerge in the junction box section 12 of said member 8 where all the wires from the various parts are concealed and properly connected.

The wire guard 6 is made in two sections and 15 held together by the fastening devices 35 as it is evident that the lower section with its spaced wire rings 36 must be first attached to the casting 8 before the propeller 5 can be positioned on the shaft of the motor 1. 46 designates a drilled 20 flat piece that is welded to the top section of the wire guard 6. 43 designates another drilled piece welded to the lower section of the wire guard 6 and co-operating with the flat piece 46, in holding the two sections of the wire guard 6 in per- 25 manent assembly.

37 designates an opening in the member 20 to permit easy insertion and removal of the light bulb 25 into or out of the socket 14. In many instances this opening 37 may be in the form of a 30 slot extending to the top of the member 20.

38 designates an auxiliary light bulb behind the propeller 5 which is inserted in the socket 40 and is controlled by the pull chain 39. 41 designates the nipple used in permanently attaching 35 the socket 40 to the member 8. It is to be clearly understood that said auxiliary lighting source can be controlled by any suitable means other than a pull chain 39 and may be operated in combination with the light bulb 25 in any man- 40 ner that will solve the problem of flicker with the propeller 5 revolving at any speed without requiring the use of a special type of shade or propeller, or a special kind of material for the member 20.

It will be apparent that the tube 15, the nozzles 16, the drilled flat piece 17 and the socket 14 may be mounted on the main support 19 directly opposite to the position shown in Figure 1 in the event it is found desirable to use certain high capacity 50 light bulbs, which cannot be operated with the screw base above the filament such as would happen if the superstructure was raised on the pivotal support 2 for spot lighting or infra-red treatments. It is to be understood, however, that 55 it is within the scope of this invention to use any type of bulb or socket desired in either position referred to, or in the event a stationary mounting is employed instead of a pivotal mounting, in fixedly attaching the superstructure to its sup- 60 port.

It will also be apparent that the shape and size of the member 20 and the co-operating member 22 as well as the type of material used in making 65 either or both members will vary in accordance with the different problems arising in eliminating flicker in the commercial production of the here- in described lighting and air conditioning device.

Figure 2 clearly shows the relation of the inwardly projecting members 26 of the fluid holding 70 member 24 to the light bulb 25. It will be seen that the intense radiant heat generated by the light bulb 25 is bound to cause evaporation of the fluid held in the member 24.

The vapors so produced are circulated and re- 75

circulated by the propeller 5 and adequate humidification is possible in artificially heated rooms where dryness may be a problem.

Figure 2 clearly shows the importance of the adjustable feature of the fluid holding member 24. It will be seen that by pushing the member 24 slightly to the right that one of the narrow projections 26 will contact the light bulb 25 to increase the intensity of the transmission of heat from the light bulb 25 to the projection 26. As the member 24 is pushed to the left two of the projections 26 will contact the light bulb 25 and greater transmission of heat will be produced. In its regular position, with all three projections 26 in spaced relation to the light bulb, a third and distinct condition will be present. In other words, if the temperature of the air passing the member 24 tends to slow up evaporation below the desired point, with the member 24 in its normal position, by a simple movement of the fluid holding member 24 the intensity of the heat transmitted from the light bulb 25 to the inwardly projecting channels 26 may be increased substantially.

Figure 3 shows the comparative size and relation of the bottom opening of the member 20 to the co-operating reflector 22. The preferred method of rigidly holding the reflector 22 and the open ended member 20 to the main support 19 and in relation to each other has already been explained and will be easily understood. As already stated in some instances the circular opening 37 may be replaced by a slot extending to the top of the member 20.

Figure 4 is a modification of Figure 1 and is substantially the same as already described but with a lower pitch to the blades 47' of the propeller 5 so as to permit of the use of an angularly disposed socket 14. In this modification the blades 47' are preferably of the overlapping type, as shown in Figure 5. However, it is to be understood that any type of propeller 5 may be used, if desired. The member 20 in this modification is preferably closed up at the bottom, adjacent to the propeller 5, and may be made of any suitable material, such as glass, mica, metal, etc., but which is preferably of electrolytically brightened aluminum, and is attached to the support 19 by the fastening devices 42 or by any other means desired. The secondary co-operating member 22, which may also be of any desired material, but which is also preferably of electrolytically brightened aluminum, can be dispensed with in many instances if the main member 20 is made of electrolytically brightened aluminum or a similar opaque material having high reflecting qualities. This is especially true where the wattage of the light bulb 25 does not exceed 100 watts and the heat rays generated by the light bulb 25 are not intense enough to create an excessive heat condition that may affect the finish of the propeller 5 or the efficiency of the motor 1. It will also be apparent that the member 22 can be dispensed with under certain conditions if the type of propeller 5 used has blades that overlap sufficiently to prevent the light or heat rays from the bulb 25 from reaching the motor 1.

Referring to Figure 5 it will be noted that the blades 47' preferably overlap at their central portion and in combination with the center piece 45 act to prevent any light rays from the bulb 25 passing through said propeller except at its outboard section, thus accomplishing two important functions, namely prevention of any heat

from the bulb 25 from reaching the motor 1 or any of the light rays of the bulb 25 from passing through said propeller except at its outboard section which automatically helps to control the problem of flicker under certain conditions, such, as, for example, in the absence of adequate wattage in the bulb 38 with which to compensate for any light rays from the bulb 25 that may penetrate the propeller 5 while revolving, especially at low speed.

Having thus described my invention what I claim as new and desire to secure by Letters Patent, is:

1. A device as herein set forth, comprising a motor driven bladed propeller, a source of light in front of said propeller, a light transmitting reflector-diffuser between said propeller and source of light, a source of light behind said propeller, with said propeller and sources of light so co-ordinated that flicker is practically eliminated, and a shade surrounding said propeller, sources of light, and light transmitting reflector-diffuser.

2. A device as herein set forth, comprising a motor driven propeller having its blades overlapping and spaced from each other, a source of light in front of said propeller, a light transmitting reflector-diffuser between said propeller and source of light, a source of light behind said propeller, with said propeller and sources of light so co-ordinated that flicker is practically eliminated, and a shade surrounding said propeller, sources of light and light transmitting reflector-diffuser.

3. A device as herein set forth, comprising a motor driven bladed propeller, a source of light in front of said propeller, an open ended member into which said source of light extends, a reflector for said source of light said reflector being spaced from said member to permit air circulation past said reflector and around said source of light, a source of light behind said propeller, with said propeller and sources of light so co-ordinated that flicker is practically eliminated, and a shade surrounding said propeller, sources of light and open ended member.

4. A device as herein set forth, comprising a motor driven propeller having its blades overlapping and spaced from each other, a source of light in front of said propeller, an open ended member into which said source of light extends, a reflector for said source of light said reflector being spaced from said member to permit air circulation past said reflector and around said source of light, a source of light behind said propeller, with said propeller and sources of light so co-ordinated that flicker is practically eliminated, and a shade surrounding said propeller, sources of light and open ended member.

5. A device as herein set forth, comprising a motor driven bladed propeller, a source of light in front of said propeller, a reflector between said propeller and source of light, a source of light behind said propeller, with said propeller and sources of light so co-ordinated that flicker is practically eliminated, and a shade surrounding said propeller, sources of light and reflector.

6. A device as herein set forth, comprising a motor driven propeller having its blades overlapping and spaced from each other, a source of light in front of said propeller, a reflector between said propeller and source of light, a source of light behind said propeller, with said propeller and sources of light so co-ordinated that flicker is practically eliminated, and a shade surround-

ing said propeller, sources of light and a reflector.

7. A device as herein set forth, comprising a bladed propeller, a motor to drive said propeller,
5 a source of light in front of said propeller, a light transmitting reflector-diffuser between said source of light and propeller, a secondary co-operating member adjacent to said source of light to prevent light or heat rays from reaching
10 the motor, a source of light behind said propeller, and a shade surrounding said propeller, motor, sources of light and light transmitting reflector-diffuser.

8. A device as herein set forth, comprising a bladed propeller, a motor to drive said propeller, a source of light in front of said propeller, an open ended member between said source of light and propeller, a secondary co-operating member
5 adjacent to said source of light to prevent light or heat rays from reaching the motor, a source of light behind said propeller, and a shade surrounding said propeller, motor, sources of light
10 and open ended member.

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