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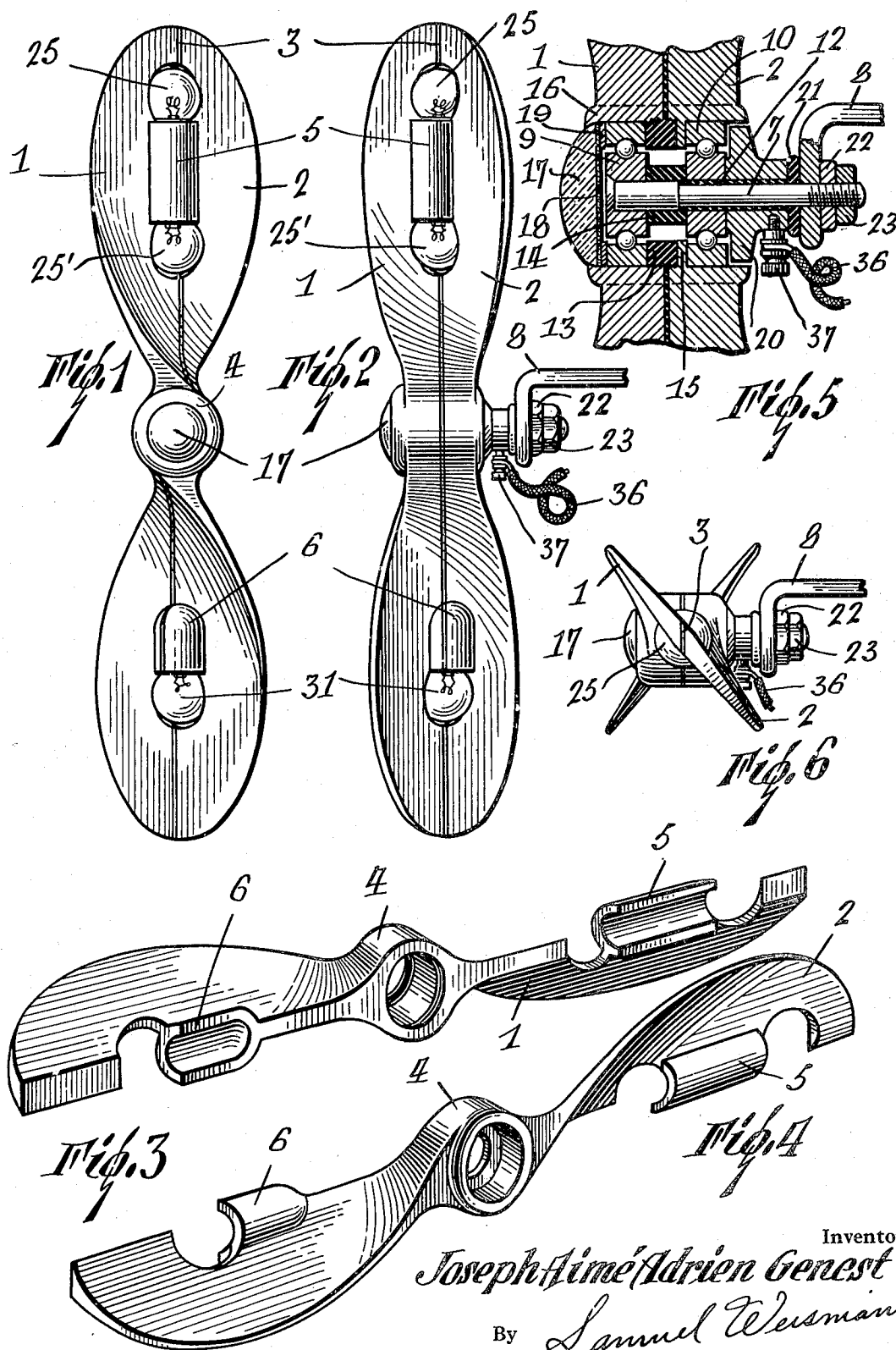
J. A. A. GENEST

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ILLUMINATED WIND WHEEL

Filed July 26, 1928

3 Sheets-Sheet 1



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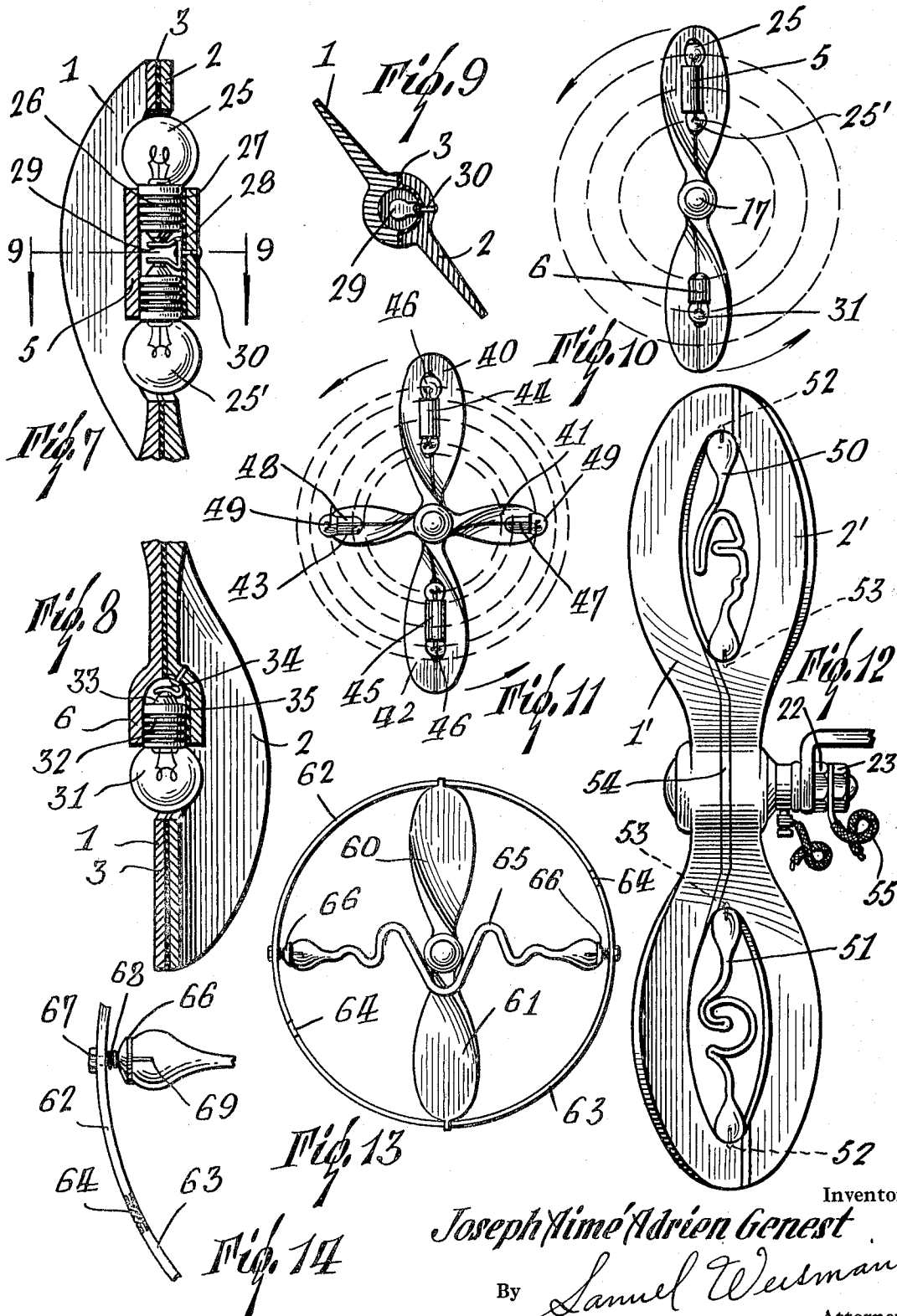
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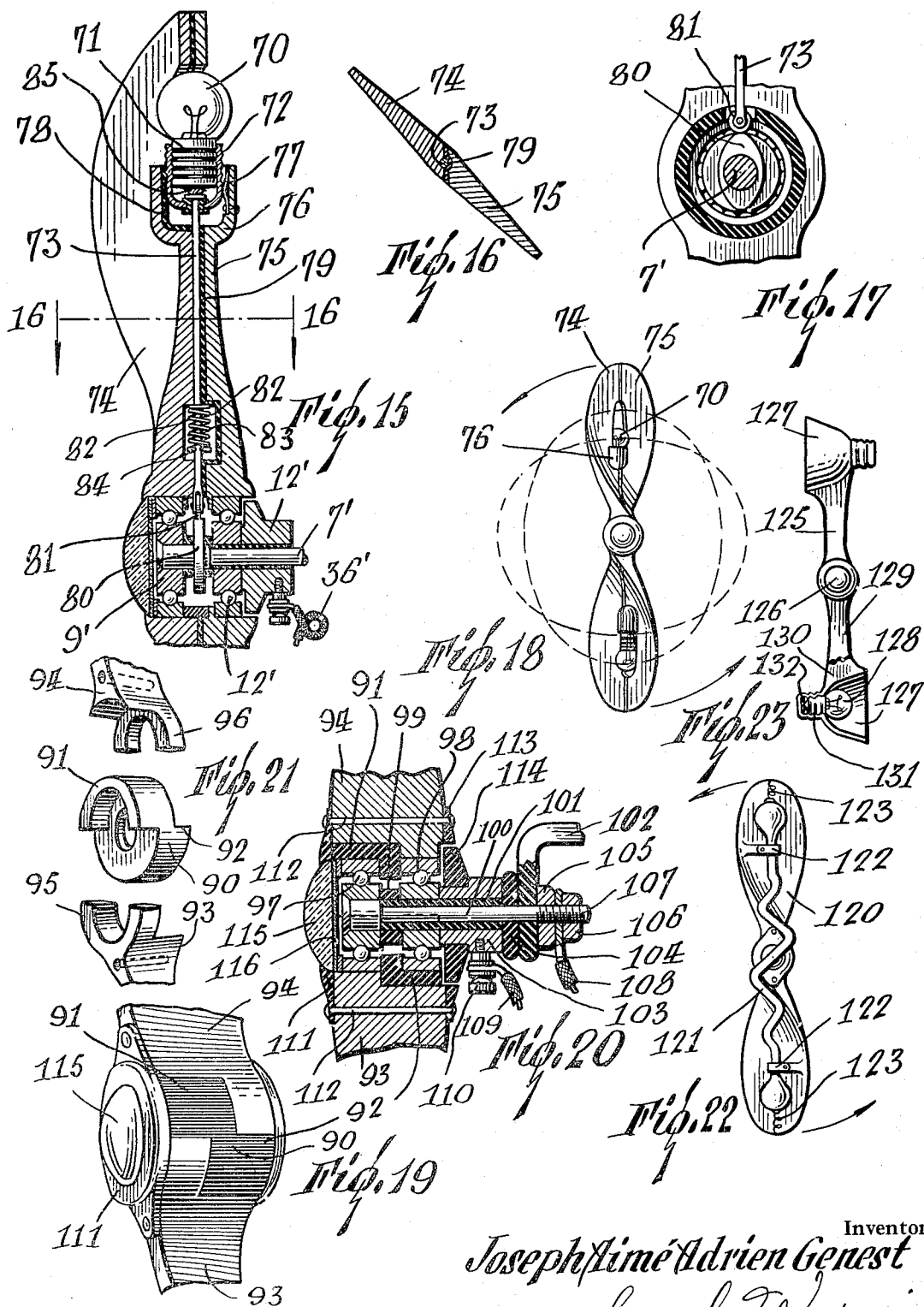
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ILLUMINATED WIND WHEEL

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3 Sheets-Sheet 3



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UNITED STATES PATENT OFFICE

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ILLUMINATED WIND WHEEL

Application filed July 26, 1928. Serial No. 295,385.

The present invention pertains to a novel wind wheel or rotary device designed particularly to be carried by a motor vehicle or other travelling body.

5 The principal object of the invention is to provide a device of this character suitably illuminated to attract attention and propelled by the linear movement of the carrying body. As already indicated, the device is essentially
10 in the nature of a wind wheel which is preferably composed of two like sections of electrically conductive material and insulated from each other. The sections are formed in such a manner as to support and carry one
15 or more lamps, or a Geissler or neon tube. The terminals of the lamp or tube are connected respectively to the sections which in turn are connected separately to a source of current supply and to the ground. The fan
20 or propeller structure thus formed by the two sections rotates on a pivot stud and ball bearings. One of the sides of the electric circuit is preferably connected with the stud, and the
25 other side to one of the bearings.

As a modification of the invention the lamp may be slidably mounted between the sections and carried by a rod which is in spring pressed engagement with a cam fixed on the stud.

30 The invention is fully disclosed by way of example in the following descriptions and in the accompanying drawings in which

Figure 1 is a front elevation of the device;

Figure 2 is a side elevation;

35 Figures 3 and 4 are perspective views of the fan sections;

Figure 5 is a detail vertical section at the hub of the device;

40 Figure 6 is an elevation in the same plane as Figure 2 and showing the fan displaced ninety degrees;

Figure 7 is a detail longitudinal section of one of the fan blades, showing the lamp connections;

45 Figure 8 is a similar section of the other blade;

Figure 9 is a section on the line 9—9 of Figure 7;

50 Figure 10 is a similar view to Figure 1, showing the circles described by the lamps;

Figure 11 is a similar view to Figure 10 of a four-blade fan;

Figure 12 is a side elevation of a modified fan equipped with Geissler or neon tubes;

Figure 13 is a front elevation of a modified construction for supporting Geissler or neon tubes;

Figure 14 is a detail thereof;

Figure 15 is a longitudinal section of a fan blade supporting a sliding tube;

Figure 16 is a section on the line 16—16 of Figure 15;

Figure 17 is a transverse section of the hub shown in Figure 15;

Figure 18 is a front elevation of a modified construction of the device shown in Figure 15, illustrating the path of two sliding lamps;

Figure 19 is a perspective view of a modified hub construction when neon or Geissler tubes are used;

Figure 20 is a longitudinal section thereof;

Figure 21 is a detached perspective view thereof;

Figure 22 is a front elevation of a modified structure carrying Geissler or neon tubes; and

Figure 23 is a side elevation of a modified structure carrying bulbs or lamps.

References to these views will now be made by uses of like characters which are employed to designate corresponding parts throughout.

The embodiment illustrated in Figures 1 to 10 inclusive comprises a pair of similar fan sections 1 and 2 which, when assembled with an insulating sheet 3, form a double blade or propeller structure. Each such section has a central boss 4 and a pair of semi-cylindrical members 5 and 6 at opposite sides of the boss.

In order to support this structure there is provided a pivot stud 7 attached to a bracket or arm 8 which in turn is grounded as by connection to the radiator shell in case the device is carried at the front end of a motor vehicle. On the rod or stud 7 is mounted a pair of ball bearings 9 and 10, the former being in metallic contact with the stud while the latter is insulated therefrom by a sleeve 12. Also, the bearing members are spaced and insulated from each other by suitable washers 13 and 14. A collar 15 in the boss of the section 2

abuts the adjacent ball bearing 10 and is also engaged by the outer ring 13.

The boss of the other section 1 has an inwardly extending ledge 16 for retaining a lens 17 which is here shown as convex but which may be of any other desired configuration such as a diamond cut. Behind the lens is a mirror 18, and between the mirror and the adjacent ball bearing 9 is a washer 19.

Between bearing 10 and the arm 8, the sleeve 12 is surrounded by bushing 20 adjacent which is another washer 21 engaging the arm 8. A nut 22 is threaded on the stud 7 to bind together the several parts mounted on the stud, and behind the nut 22 is a lock nut 23.

Into the ends of the sleeve formed by the sections 5 are inserted a pair of lamps 25 and 25', the plugs 26 of each are in contact with one of the sections but separated from the other section by an insulating sheet 27. A spring member 28 bearing against the remaining contacts 29 of the lamps is supported by the insulated section 5 and electrically connected thereto by means of a pin 30, as shown in Figures 7 and 9.

The cylinder formed by the sections 6 support a lamp 31 having its socket 32 in contact with one of the sections and its remaining terminal 33 joined by spring member 34 to the remaining section which is insulated from the plug 32 by a sheet 35.

When the device is mounted on the forward end of a rapidly moving vehicle it will be rotated by its pressure against the air, after the fashion of a wind wheel. One side of the circuit supplying current to the device will be carried through a conductor 36 joined by a binding post 37 to the member 20, thence to the bearing 10 and fan section 2, through the pin 30 or connection 34 to one of the terminals of each lamp, through the lamp sockets to the section 1, and finally through the bearing 9, stud 7, arm 8 to a grounded member. Obviously the current may flow in the reverse direction, depending on whether the conductor 36 is connected to the positive or negative side of the circuit. The illumination produced by the lamps will be reflected by the lens 17 and mirror 18 to create the effect of an additional lamp without additional consumption of energy. The two lamps 25 and 25' and the lamp 31 are spaced at different distances from the centre of the fan, whereby they produce three distinct luminous circles as illustrated in Figure 10.

Figure 11 illustrates a modification wherein the fan sections are formed to provide four blades 40, 41, 42 and 43, insulated medially and connected electrically in the manner already described. The blades 40 and 42 are formed with sleeves 44 and 45 respectively, each carrying a pair of lamps 46. The blades 41 and 43 have single sleeves 47 and 48 respectively carrying lamps 49 of different

colors, spaced at equal distances from the centre for the purpose of combining the colors.

In the embodiment shown in Figure 12, the lamps are replaced by Geissler or neon tubes 50 and 51, each having an electrode 52 connected to the section 1' and its remaining electrode 53 connected to the section 2'. The remaining electrical connections are as described with reference to Figure 5. The tubes 50 and 51 may be bent into any desired form or design, in this case showing the letters A and G. Current is supplied at about 1000 volts A. C., which is much more than required for ordinary lamps, and the insulation 54 between the sections 1' and 2' is correspondingly thicker. It may be desirable not to ground one side of the circuit, in which case a conductor 55 is inserted between the nuts 22' and 23'.

Figures 13 and 14 illustrate a modified means for connecting the Geissler or neon tubes. The blades 60 and 61 are of opposite sign instead of being split longitudinally, and a ring consisting of two sections 62 and 63 is secured to the tips of the blades. Between the abutting ends of the sections 62 and 63 is placed insulating material 64 as shown more clearly in Figure 14. The tube 65 is positioned diametrically across the ring at right angles to the blades. It is provided at its ends with seats or caps 66 supported by nut-equipped bolts 67 passed through the ring and surrounded by springs 68 between the ring and the caps in order to provide a yieldable support for the tube. The electrodes 69 are positioned in the ends of the tube as clearly illustrated in Figure 14.

In the embodiment shown in Figures 15 to 18, the hub construction, is similar to that illustrated in Figure 5. Each blade carries one lamp 70 having a socket 71 mounted in an outer socket 72 which in turn is carried on a rod 73 slidably mounted between the blade sections 74 and 75. A cup 76 is formed between the sections and is provided with a spring contact member 77 engaging the slidable socket 72, whereby the section 75 is brought into electrical contact with the socket 71 which is insulated from the section 74 by suitable material 78. The rod 73 however is in contact with the section 74 but insulated from the section 75 by material 79. On the stud 7' is fixed a cam 80, and a roller 81 at the lower end of rod 73 rides on this cam. Between the sections 74 and 75 is formed a recess 82 for accommodating a spring 83 surrounding a part of the rod. The spring bears upwardly on the roof of the recess and downwardly on a pin 84 carried by the rod 73, whereby the roller 81 is constantly maintained in engagement with the cam.

Assuming that the current enters at the conductor 36', it flows through the sleeve 12' 130

to the bearing 10' and thence to the section 75. From here it flows through the spring contact 77 to the outer socket 72 and inner socket 71, from which it flows to the remaining lamp terminal 85 which is in contact with the rod 73. From the rod the current flows to the cam 80 through roller 81, and stud 7', or by section 74, bearing 9', and stud 7' to the other side of the circuit. The cam is fixed, and the lamps reciprocate while revolving around it so that they describe elliptical paths with their major axes at right angles to each other as shown in Figure 18. The illuminated paths could be modified by changing the shape of the cam or cams.

When the blades are to be of opposite sign and not split, as in Figures 13 and 14, they are made according to the construction shown in Figures 19, 20 and 21. The assembly includes a hub member 90 with semi-circular flanges 91 and 92 at opposite sides thereof and at opposite sides of a diameter. The blades 93 and 94 are formed with socket members 95 and 96 respectively fitted adjacent the flanges 91 and 92. At each side of the hub, and in the circles defined by the flanges and sockets are ball bearings 97 and 98. The former is insulated from the blade 94 but in contact with the blade 93, while the bearing 98 is in contact with the blade 94 but insulated from the blade 93. This insulation is provided by hub member 90 of insulating material and washer 99 which also separates the bearings 97 and 98. The bearings revolve about a stud 100 which is in contact with the bearing 97 but insulated from the bearing 98 by a sleeve 101. On the stud is also mounted a bracket 102, and between the bracket and the bearing 98 is a metallic sleeve 103 which however is insulated from the bracket by a washer 104. The bracket 102 is bound against the sleeve 104 and the remaining parts on the stud are compressed by nuts 105 and 106 on the threaded end 107 of the stud. Between these nuts is secured a conductor 108, and another conductor 109 is connected to the sleeve 103 by a binding post 110.

An insulating ring 111 is secured to the forward face of the wheel, around the center thereof, by bolts 112 passed through the blades and also holding an insulating ring 113 at the other side. Within this ring is still another ring 114 mounted on the sleeve 103 to prevent access of dust to the bearing 98. The ring 111 retains the lens 115 behind which is a mirror 116. This lens functions in the manner described in connection with the lens 17 of Figure 5.

Assuming that the current enters through the conductor 108, it flows along the stud 100 to the bearing 97 and blade 93, thence across the luminary tube to the other blade 94 from which it flows to the bearing 98, sleeve 103 and conductor 109 to the other side of the circuit.

In the embodiment shown in Figure 22 the 2-blade wheel 120 carries a tube 121 along its axis. The ends of the tube are held in clamps 122 carried by the blades, whereby the tube may be readily changed. The tube has electrodes in its ends, joined by loose wires 123 to the tips of the blades which are of opposite sign in the manner already set forth.

The form shown in Figure 23 consists of an arm 125 having a central pivot point 126 and having at its ends cups 127 in opposite directions. The cups contain lamps 128. The pivotal axis may be horizontal or vertical. The arm is divided into two parts 129 and 130 insulated from each other. The socket 131 of the lamp is in contact with one of these parts while the remaining contact 132 of the lamp is in engagement with the other part.

It is to be noted that the device may have any desired number of blades and may carry any desired number of lamps which are not limited as to color. Also, the device may be of other than propeller shape as in Figure 23, and there may be any number of lamps in each branch thereof.

Although specific embodiments of the invention have been illustrated and described, it is to be understood that various alterations in the details of the construction may be made without departing from the spirit or scope of the invention as indicated by appended claims.

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

1. A wind wheel comprising a pair of split fan sections, insulating material secured therebetween, and an illuminating device having its terminals connected separately to said sections.

2. A wind wheel comprising a pair of split fan sections, insulating material secured therebetween, and an illuminating device having its terminals connected separately to said sections, said sections being adapted for connection to opposite sides of an electric circuit.

3. A wind wheel comprising a pair of split fan sections, insulating material secured therebetween, semi-cylindrical members formed on said sections and forming a sleeve, and a lamp held in said sleeve and having its terminals connected to said sections.

4. A wind wheel comprising a pivot stud, ball bearings mounted on said stud, one of said bearings being insulated from said stud, insulating material between said bearings, fan sections mounted on said bearings and insulated from each other, and an illuminating member carried by said sections and having its terminals separately connected thereto.

5. A wind wheel comprising a pivot stud,

- ball bearings mounted on said stud, one of said bearings being insulated from said stud, insulating material between said bearings, fan sections mounted on said bearings and insulated from each other, semi-cylindrical members formed on said sections and forming a sleeve, and a lamp held in said sleeve and having its terminals connected separately to said sections. 70
6. A wind wheel comprising a pivot stud, ball bearings mounted on said stud, one of said bearings being insulated from said stud, insulating material between said bearings, fan sections mounted on said bearings and insulated from each other, an illuminating member carried by said sections and having its terminals separately connected thereto, and electrical connections to said stud and insulated bearing. 80
7. A wind wheel comprising a stud, ball bearings mounted on said stud, one of said bearings being insulated from said stud, insulating material between said bearings, fan sections mounted on said bearings and insulated from each other, an illuminating member carried by said sections and having its terminals connected separately thereto, a conducting bracket secured to said stud, insulation between said bracket and the adjacent bearing, lock nuts pressing said bracket against said insulation, and an electrical connection to said last named bearing. 85
8. A wind wheel comprising a pivot stud, ball bearings mounted on said stud, one of said bearings being insulated from said stud, insulating material between said bearings, fan sections mounted on said bearings and insulated from each other, semi-cylindrical members formed on said sections and forming a sleeve, a lamp held in said sleeve and having its terminals connected separately to said sections, and a reflector member mounted at the hub of said fan. 90
9. A wind wheel comprising a pivot stud, ball bearings mounted on said stud, one of said bearings being insulated from said stud, insulating material between said bearings, fan sections mounted on said bearings and insulated from each other, a cam fixed on said stud, a rod slidably mounted between said sections and having one end in spring pressed engagement with said cam, a lamp mounted on said rod, said lamp having one of its terminals connected to said rod and the other terminal connected to one of the said fan sections. 100
10. A wind wheel comprising a pivot stud, ball bearings mounted on said stud, one of said bearings being insulated from said stud, insulating material between said bearings, fan sections mounted on said bearings and insulated from each other, semi-cylindrical members formed on said sections and forming a sleeve, a cam fixed on said stud, a rod slidably mounted between said sections and having one end in spring pressed engagement with said cam, a lamp mounted on said rod, said lamp having one of its terminals connected to said rod and the other terminal connected to one of the said fan sections. 105
- In witness whereof I have hereunto set my hand.
- JOSEPH AIMÉ ADRIEN GENEST. 110
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