

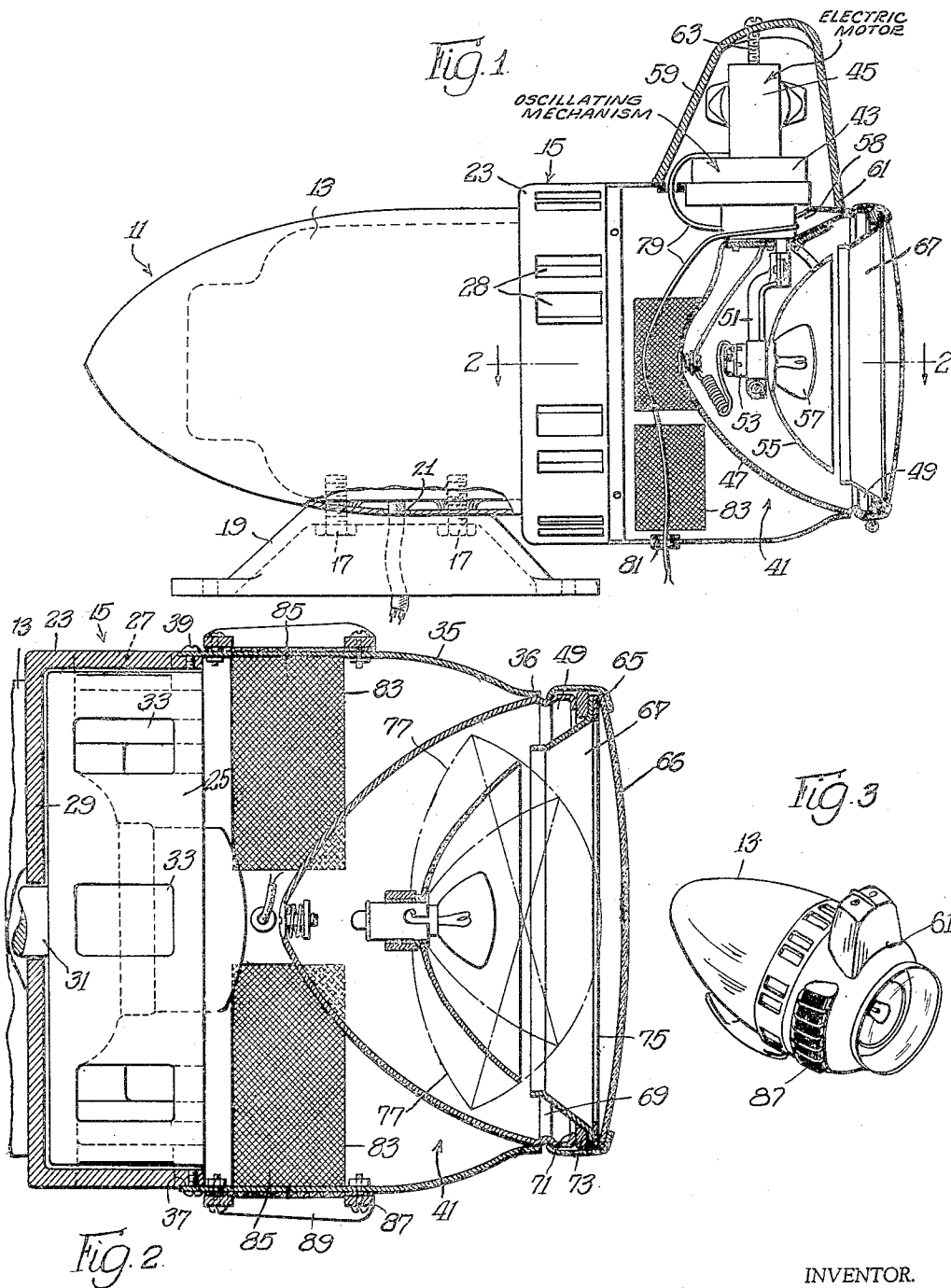
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SIGNALING DEVICE

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SIGNALING DEVICE

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My invention relates in general to signaling and has more particular reference to a combined audible-visible warning apparatus particularly well suited for use on vehicles, such as fire fighting and police trucks, ambulances and other vehicles requiring preferred traffic rights on highways.

An important object of my present invention is to provide a signaling device embodying visual and audible warning equipment as a unit adapted for mounting on vehicles; a further object being to provide, in combination of the character mentioned, visual signaling apparatus in readily visible position and adapted for actuation in the unit in unusually eye-arresting fashion.

Another important object is to provide a combined audible-visual signaling unit in which the visual signaling means comprises an oscillating lamp well adapted to attract attention, because of the flashing effect produced when the lamp is in operation; a further object being to provide for mounting an oscillating lamp in an audible signaling device, such as a siren, in position such that the lamp is mounted in plainly visible position without, however, interfering with the operation of the audible signaling means.

Another important object is to mount the oscillating light immediately in front of a rotating siren in axial alignment therewith; a further object being to support the oscillating lamp in a housing to protect the same from dust and the weather, and to form the lamp housing as an air intake to the sound producing mechanism of the siren; a still further object being to support the lamp housing entirely on the frame of the siren.

Another object is to mount the oscillating lamp, together with a motor for driving the same, entirely on a housing which is attached to and forms a forward extension of a siren casing; a further object being to form the lamp casing as a cylindrical shell with the lamp extending therein and its driving motor extending outwardly of said shell; a further object being to enclose the outwardly extending lamp oscillating motor in an auxiliary shell which serves to support the motor and the lamp mechanism on the lamp housing, whereby said auxiliary motor housing serves not only to enclose the lamp oscillating motor and protect it from the weather, but also to support the motor and attached lamp in position on the lamp housing.

These and numerous other important objects, advantages and inherent functions of the invention will become apparent as the same is more

fully understood from the following description, which, taken in connection with the accompanying drawing, discloses a preferred embodiment of the invention.

Referring to the drawing:

Figure 1 is a view in side elevation of a warning device embodying my present invention, parts of the device being shown broken away to reveal details of construction;

Figure 2 is a sectional view taken substantially along the line 2-2 in Figure 1; and

Figure 3 is a perspective view of the device.

To illustrate my invention, I have shown on the drawing a warning device 11 comprising a frame forming a housing 13 carrying a noise producing device 15, which, in the illustrated embodiment, comprises a siren. The housing 13 is preferably a conical shell enclosing a suitable electric motor for driving the siren, which motor is secured in place within the casing 13 in any suitable or preferred fashion, as by means of bolts 17, which also serve to secure the motor and the housing 13 upon a support base or mounting bracket 19. The motor may be energized by electrical power from an external source by means of cables or conductors passing through aligned openings 21 formed in the mounting bracket and housing.

The siren 15 comprises a stator 23 fixed on the housing 13 at one end thereof and a rotor 25 turnably mounted within the stator. The stator comprises a cylindrical rim 27 formed with ports 28 arranged circumferentially in said rim, and the stator has an end wall 29 closing the adjacent end of the housing 13 and through which wall the shaft 31 of the motor extends from the housing 13 into the stator in position to support the rotor 25, which is fastened on the shaft in any suitable or preferred fashion. The siren rotor is thus mounted for rotation snugly within the cylindrical ported walls of the stator and comprises a cylindrical runner, the cylindrical wall of which is provided with a plurality of spaced openings 33.

The end of the stator opposite from the wall 29 is open, and the side of the rotor which faces away from the wall 29 is likewise formed with an opening, so that when the rotor is turned at high speed, the relative movement of the ported walls of rotor and stator will create the characteristic siren sound as a result of drawing air into the rotor through the open side thereof which is exposed at the open end of the stator, thence expelling air radially outwardly through the stator ports 28 as the same are rapidly opened

and closed successively by the rotation of the rotor within the stator.

The assembly also comprises a preferably cylindrical housing 35 which may conveniently be formed of sheet metal. One end of this housing is secured preferably in readily demountable fashion upon the stator in position extending forwardly of the open end thereof, the edge of the housing 35 being preferably anchored in an annular seat 37 formed in the stator at the open end thereof, the parts being secured together in any suitable or convenient fashion, and preferably by means of holding screws 39. The opposite end 36 of the housing is open.

Within the housing 35 is mounted lamp means 41 in position to project light rays outwardly of the housing through the end thereof facing away from the siren, and I provide means for oscillating the lamp within the housing 35, whereby an extremely eye-arresting visual effect is produced when the lamp is in operation. The lamp means 41 comprises a frame 43 upon which is secured a preferably electrically operable motor 45 and a lamp container 47, the motor and lamp container being preferably arranged on opposite sides of the frame portion 43, which contains lamp oscillating mechanism of any preferred construction. The container 47 preferably comprises a conical shell having a mouth portion 49 formed to fit snugly within the open end 36 of the housing 35 and to project slightly outwardly of the housing.

The lamp oscillating mechanism includes a stem mounted in the frame 43 and projecting within the container 47, said stem carrying a bracket 51 on which is mounted a lamp socket 53, the socket preferably being centered in the container 47 and substantially in axial alignment with the axis of the siren and its driving motor. The lamp socket carries a reflector 55 and is adapted to receive and support a light source, preferably in the form of an incandescent lamp 57, in position with respect to the reflector so that all of the light rays generated by said source 57 may be directed outwardly through the opening in the container 47, that is to say, in a direction forwardly of the unit. When the container 47 is mounted in position in the housing 35, the frame 43 extends in an opening formed in the housing 35, so that the motor 45 is disposed outwardly of said housing and the lamp means 41 is anchored in place by means of an auxiliary housing or cover 59, which also serves to enclose the motor and protect the same from dirt and the weather. This cover 59 comprises a shell-like member which may conveniently be formed of sheet material of suitable size and configuration to snugly enclose the motor 45, said shell having edges 61 to fit upon the curved external surfaces of the housing 35 around the opening 58 through which the frame 43 extends. The housing 59 and the motor 45 are secured together, as by holding screws 63, so that the cover 59 is snugly seated on the housing 35 and the lamp means is, in effect, clamped in mounted position by the cover 59 and by the seating of the mouth of the container 47 in the open end of the housing 35. It will be apparent, however, that the entire lamp assembly 41, including the frame 43 and driving motor 45, may be easily removed for inspection, repair or replacement merely by removing the holding screws 63.

The mouth 49 of the container 47 projects forwardly of the housing 35 through the open

end 36 thereof to form a mounting for receiving a clamping ring 65 which serves to hold a window-pane 66 of preferably ruby glass and an annular rim shade 67 in position in front of the oscillating light source 57. To this end, the clamping ring 65 has an inner edge adapted to fit into an annular groove 69 formed in the exposed lip 49, the opposite edge of the clamping ring being formed as an annular flange adapted to overlie the edges of the window-pane and to secure it and the edge of the shade 67 clampingly upon the terminal edge of the lip 49, which is intumed, as at 71, to form a seat for receiving the marginal edge of the shade. Suitable gaskets 73 and 75 may be provided between the flange 71, the marginal edge of the shade 67, and the marginal edge of the window-pane 66. When the motor 45 is energized, the bracket 51, the light source 57, and the reflector 55 will be rocked, as indicated in dotted lines at 77 in Figure 2 of the drawing, through the operation of the rocking mechanism contained in the frame 43, so that light rays emitted by the lamp may impinge in a zone of substantial width forwardly of the unit and extending on opposite sides of the axis of the siren. To all observers within such zone, the warning device will appear as a rapidly flashing signal of highly eye-arresting character. By utilizing an oscillating lamp, therefore, I not only provide for the delivery of a visual warning within a zone of extended width, but also provide the benefit of a flashing light effect excellently suited for warning purposes throughout the entire area.

The lamp 57, as well as the motor 45, may be energized from an external source through suitable cable or conductor means 79 extending within the housing 35 and outwardly thereof through a suitable bushed opening 81.

The housing 35 is provided with openings 83 in the opposite sides thereof, these openings being preferably covered with screen means 85 to exclude the entry of dirt, while permitting entry of air for the operation of the siren, the screen means 85 being preferably held in place by frames 87 formed with louvers 89, which serve not only to improve the external appearance of the screened openings 83 but also aid in deflecting atmospheric moisture.

It will be seen from the foregoing that my present invention visualizes the provision of a signaling unit, including audible and visual signaling means, compactly arranged, whereby both visual and audible means may be operated simultaneously or separately without mutual interference, the visual signaling means being mounted in the assembly in position to emit a visual signal in unobstructed fashion forwardly of the unit. It will be seen also that the utilization of an oscillating lamp, in providing the visual signal, affords visual signal coverage of high warning capacity throughout an area of extended width.

It is thought that the invention and numerous of its attendant advantages will be understood from the foregoing description, and it is obvious that numerous changes may be made in the form, construction, and arrangement of the several parts of the illustrated apparatus without departing from the spirit or scope of my invention or sacrificing any of its attendant advantages, the forms herein described being merely for the purpose of illustrating the invention.

The invention is hereby claimed as follows:

1. A signaling device comprising, a siren hav-

ing an annular ported member open at one end, a housing on said ported member and extending outwardly of the open end thereof to provide a chamber having an opening facing away from said siren, directional light projecting means in said chamber so positioned as to emit light rays through said opening, said directional means including a reflector and an associated light source mounted in said chamber, actuating means including an electric motor disposed outwardly of said housing and oscillating mechanism projecting through an opening in said housing and operatively associated with said directional means for oscillating the directional means, carrier means releasably associated with said housing and connected with said motor and oscillating mechanism, and cover means disposed over and secured to said motor and cooperatively engageable with the exterior of said housing for anchoring said carrier means, motor and oscillating mechanism in predetermined position with respect to said housing.

2. A signaling device comprising a siren having an annular ported member, said ported member having an open end, a housing on said ported member and extending outwardly of the open end thereof to form a chamber having a window opening facing away from said siren, said housing having a lateral opening in the walls thereof, and oscillating directional light projecting means in said chamber, said light projecting means comprising a frame extending in said lateral opening and having a portion adapted to abut an internal portion of the margin defining said lateral opening in the housing, a reflector, and an associated light source mounted on said frame and extending in said chamber in position to emit light rays through said window

opening, actuating means on said frame and extending outwardly of said housing, said actuating means being drivingly connected with said reflector to oscillate the same, whereby to provide a visual warning signal effective within a zone of substantial area forwardly of said siren, and frame anchoring means to anchor said frame to said housing cooperative with the exterior side of said housing through abutment of said portions.

3. A signaling device as set forth in claim 2, wherein the frame anchoring means forms with said housing, an enclosure for said actuating means.

4. A signaling device as set forth in claim 2, wherein said frame carries a conical shell for enclosing said light projecting means in said chamber, said conical shell having a lip snugly fitting and seating upon the marginal edge of the housing defining the window opening and having portions projecting outwardly of said opening, and means securing a window-pane on said projecting portions for enclosing said light source and reflector within said enclosure.

5. A signaling device as set forth in claim 2, wherein said frame carries a conical shell for enclosing said light projecting means in said chamber, said conical shell having a lip snugly fitting and seating upon the marginal edge of the housing defining the window opening, and wherein the means for attaching said light projecting means in the housing comprises a clamping member removably secured on said frame outwardly of said housing in position to clamp the light projecting means on the housing through the co-operation therewith of the lip of the enclosure and said clamping member.

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