

Apr. 10, 1923.

1,451,166

D. J. McCARTHY

SIGNAL DEVICE

Filed May 27, 1920

Fig. 1.

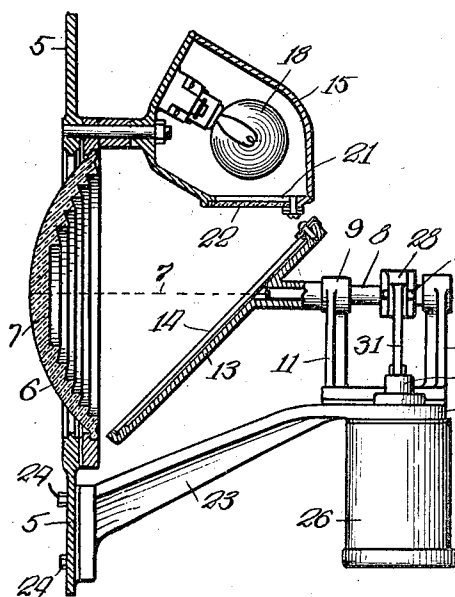


Fig. 2.

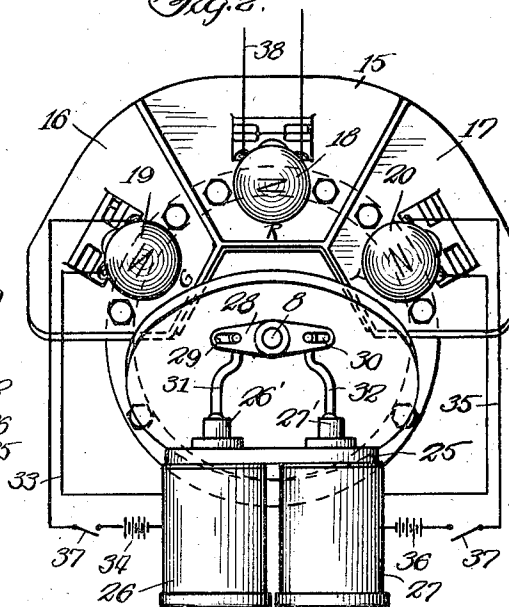


Fig. 3.

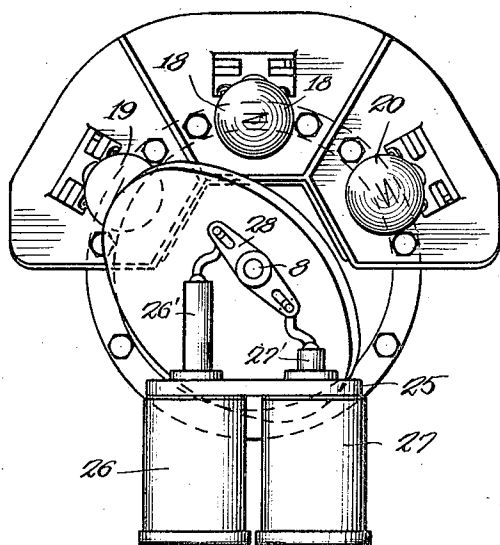
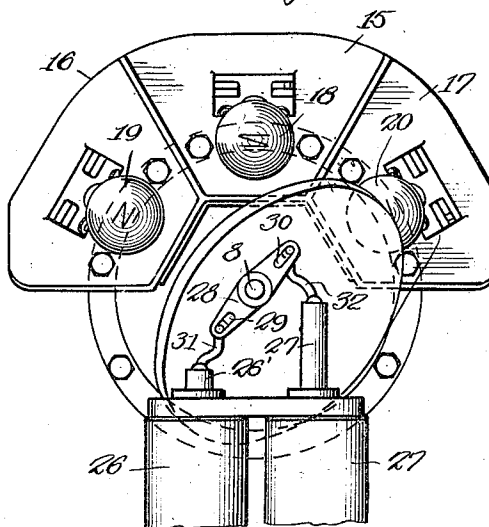


Fig. 4.



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UNITED STATES PATENT OFFICE.

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SIGNAL DEVICE.

Application filed May 27, 1920. Serial No. 384,560.

To all whom it may concern:

Be it known that I, DANIEL J. McCARTHY, a citizen of the United States, residing at Elgin, in the county of Kane and State of Illinois, have invented certain new and useful Improvements in Signal Devices, of which the following is a specification.

The invention relates to improvements in signal devices.

One of the objects of the invention is to improve poly-chromatic signal devices from which a shaft of light, of selected color, may be projected, as a signal.

A more specific object is to provide improved means for moving the light reflector to appropriate position, with respect to the several sources of vari-colored lights, or lamps, within the device.

Other, further and more specific objects of the invention will become readily apparent, to persons skilled in the art, from a consideration of the following description, when taken in conjunction with the drawings, wherein:—

Fig. 1 is a central vertical section, showing the reflector and one of the lamps for co-operation therewith and the motor mechanism in elevation.

Fig. 2 is a rear view of Fig. 1.

Fig. 3 is a similar view, showing the reflector moved into a new position.

Fig. 4 is a similar view showing the reflector moved into another position.

In all the views the same reference characters are employed to indicate similar parts.

In an application filed by me herewith, Serial No. 384,559, I have disclosed and claimed a signal device, in many respects similar to the structure herein shown, the arrangement of the lens, lamps, subcasings, and reflector being substantially the same. In the present case a different form of electric motor, more especially adapted for direct current, is herein shown, whereas, in the former case, motors for alternating current are indicated. In the companion case, the broader claims are contained, while in the instant application the claims are more closely confined to the form of motor and its relation to the other mechanism of the device.

In the accompanying drawings, 5 shows a part of the general casing for containing the device, having an opening for a lens

6, the axis 7 of which is in line with the axis of the shaft 8, the lens is placed, as shown, in a vertical plane. Mounted in line with the horizontal axis of the lens 6, substantially at right angles to the diametric plane thereof, is a shaft 8, provided with bearings 9 and 10, supported on standards 11 and 12, respectively. The shaft 8 is quite free to turn upon its bearings and on its inwardly projecting end, it supports a disk 13, having mounted thereon a reflector 14, such as a mirror, or the like. Located about the lens are a series of sub-casings 15, 16 and 17. Each of these casing contains a lamp 18, 19 and 20, respectively. Each of the sub-casings is provided with an opening 21. In front of the casing 15 is a red glass 22 thru which the light from the lamp 18 will pass when it impinges upon the reflecting surface 14 of the reflector. If the lamp globes are of the proper color, the glass 22 may be dispensed with. The object being to color the shaft of light received from the respective casings, so that each shall have a distinctive color, such for example, as red, yellow and green. The casing 16, therefore, would have a green lamp, or be provided with a green, translucent plate 22, while the casing 17 would have a yellow lamp, or be provided with a yellow plate 22.

Red is usually a color indicative of danger and, as the reflector is mounted in such manner, with respect to the shaft 8, that it will always assume the position shown in Fig. 1 by the effect of gravity, the device will always show a shaft of red light, when the lamp 18 is illuminated, or becomes energized.

A bracket-arm 23 is secured to the casing 5, as by bolts or screws 24, and on its extended free end 25 it carries two solenoids 26 and 27. A cross-arm 28, is secured to the shaft 8. The cross-arm is slotted at its ends as at 29 and 30. The cores 26' and 27' of the electro-magnet coils, 26 and 27, are connected to the slots 29 and 30, respectively, by means of links 31 and 32, respectively. When the solenoid coil 27 is energized, as shown in Fig. 3, the reflector 14 is moved thereby into position so as to reflect the light coming from the lamp 20 thru the lens 6, thereby producing a shaft of yellow light. When the solenoid 26 is energized, it will move the reflector 13 into position shown in Fig. 4

in front of the lamp 19 and, therefore, a green light will be projected thru the lens. The lights will continue to shine thru the lens so long as the respective motors, or solenoid coils and associated lamps are energized, but so soon as either of these solenoids are de-energized, after holding the lens in its appropriate position, then the effect of gravity will move the reflector back into the position shown in Fig. 1, or immediately below the red light, whereby a shaft of red light will be projected thru the lens 6. Now, so long as the red light remains energized, a shaft of red light will be projected thru the lens 6. The solenoid coil 26 is in series with the lamp 20, while the solenoid coil 27 is in series with a lamp 19 and, therefore, it is necessary that the energizing current must pass thru the lamp and then thru the solenoid before the reflector will be moved thereby to its position, assuring the operation of the device. But, if the solenoid be deranged by having an open circuit or if the lamp have a broken filament then, the instrument will continue to project the light of danger or, more particularly the shaft of red light. In Fig. 2, I have shown diagrammatically a circuit 33 containing a battery 34, or other source of electric energy, including the solenoid 26 and the lamp 19, and a similar circuit 35 containing a battery 36, or other source of electric energy, and the solenoid winding or coil 27 with the lamp 20 in series therewith. An appropriate electric switch 37 is used in each case for closing the respective circuits, while the circuit 38 is used for energizing the lamp 18. Any appropriate means for closing the circuits and any source of electric energy, adaptable for the purpose, may be used without modifying effect upon the structure shown.

While I have herein shown a single embodiment of my invention for the purpose of clear disclosure, it will be manifest that changes may be made in the general ar-

rangement and configuration of the parts within the scope of the appended claims.

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

1. A signal device having a lens; a plurality of lamps arranged around the lens, a reflector, movable to project the light thru the lens from a selected lamp and a solenoid, in series with the selected lamp to move the reflector to appropriate cooperative position with respect to said lamp.

2. A signal device having a lens; three lamps arranged about the lens; a reflector, movable to project the light thru the lens from the center lamp and movable by gravity to said position; a solenoid winding in series with one of the other lamps, the core thereof connected to the reflector to move it to appropriate position for said lamp and a solenoid winding in series with the other lamp having its core connected to the reflector to move it to appropriate position for said associated lamp.

3. A signal device having a lens with its axis in a horizontal plane; a lamp immediately above the axis of said lens and a lamp on each side of the intermediate lamp; an oscillatable reflector inclined at substantially forty five degrees to the axis of the lens, normally in position to reflect the light thru the lens from the lamp immediately above and movable to reflect the light from either of the side lamps thru said lens; a solenoid in series with one side lamp connected to the reflector to move it into position to reflect the light therefrom and a solenoid in series with the other side lamp connected to the reflector to move it into position to reflect the light therefrom and means to return the reflector to normal position when both side lamps are extinguished.

In testimony whereof I hereunto subscribed my name.

DANIEL J. McCARTHY.