June 1, 1948. C. W. M. MORRIS 2,442,506

PORTABLE ELECTRIC SIGNAL LAMP

Filed March 31, 1944

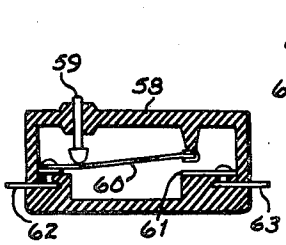


Fig. 5.

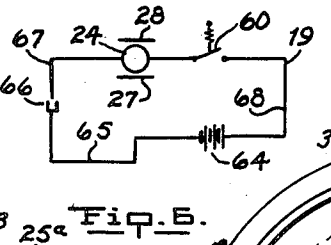


Fig. 6.

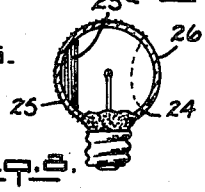


Fig. 8.

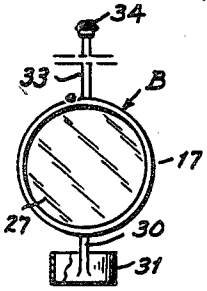


Fig. 3.

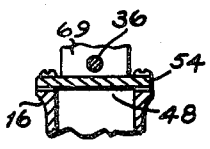


Fig. 4.

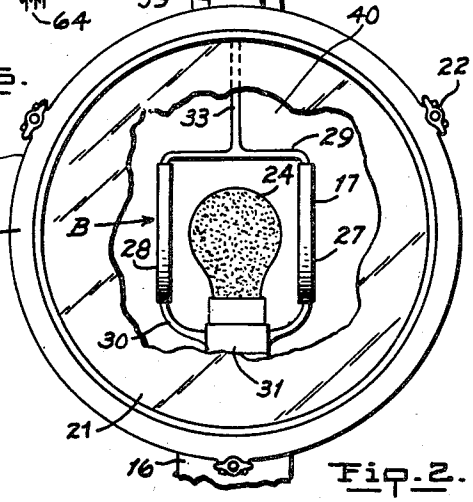


Fig. 2.

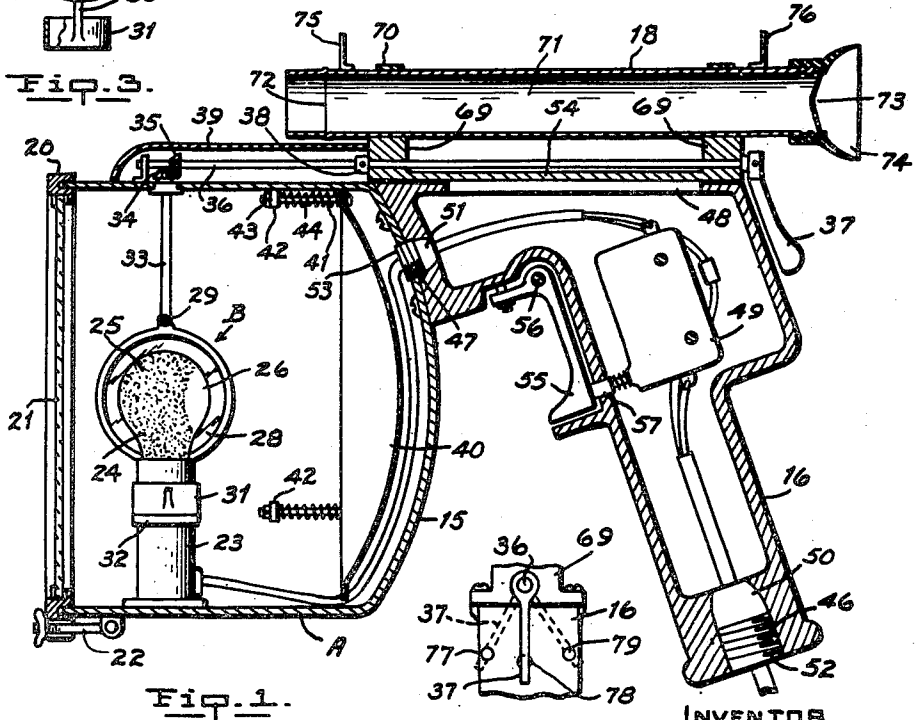


Fig. 1.

Fig. 7.

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PORTABLE ELECTRIC SIGNAL LAMP

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3 Claims. (Cl. 177—329)

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This invention relates to signal lamps and more particularly does it relate to improvements in the signal lamp disclosed in my United States Patent No. 2,341,189 dated February 8, 1944, and distinguishes from the aforementioned patent by providing means for signalling with light flashes of different colours.

One of the objects of the present invention is to provide a device of this character which will enable light signal flashes to be transmitted in required colour form.

Another object of the invention is to provide a device of this character wherein the operator may instantly select and transmit signal flashes of a predetermined colour.

A further object of the invention is to provide a device of this nature which is portable and hand operated and is provided with lamp sighting means which enables the operator to concentrate a light beam from the lamp in signal flash form upon a given object, moving or otherwise.

Still a further object of the present invention is to provide a device of this character and nature which, apart from use as a signal device for transmitting signals from ship to shore, shore to ship, airplane to airplane, airplane to ship, etc., etc., may effectively and efficiently be employed for traffic control purposes in connection with airfield operations, street traffic and like conditions.

Yet a further object of the present invention is to provide a device of this character which is simple in form, rugged in nature and one that will the more satisfactorily perform the functions required of it.

Bearing in mind the foregoing and other objects which will become apparent as the nature and details of the present structure become known and understood, the invention consists essentially in the novel combination and arrangement of parts hereinafter described in particular detail and illustrated in the accompanying drawings in which:

Fig. 1 is a sectional view of a signal lamp disclosing an embodiment of the present invention.

Fig. 2 is a front elevational view of Fig. 1.

Fig. 3 is a side view of the colour selector shown in detached form.

Fig. 4 is a fragmentary detail of the handle member showing the closure cover and sight supporting means.

Fig. 5 is a sectional view of the circuit closing switch.

Fig. 6 is a schematic diagram of the circuit.

Fig. 7 is a fragmentary view of the rear of the handle member showing the selector operating lever, and

Fig. 8 is a section taken vertically through the light bulb

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In the accompanying drawings illustrating an embodiment of the present invention and wherein like letters and numerals of reference designate corresponding parts and elements in the different illustrations, the letter A indicates the signal lamp as a whole and the letter B the colour selector.

Broadly speaking, the device includes a lamp housing 15, handle operating means 16 preferably of the pistol-grip type, colour selector 17, sighting means 18 and circuit 19.

More in detail, the lamp housing includes a detachable cover member 20 provided with lens 21 and detachable connecting means 22. The lens is provided with rubber or like gaskets to form a gas-proof chamber in the housing and shock absorbing means for the lens 21.

A vertical bulb supporting socket 23 is mounted within the housing 15 in any suitable manner and supports bulb 24 substantially centrally of the main reflector. As more particularly indicated in Fig. 1, a light-proof coating 25 of suitable material covers the entire outer surface of the bulb 24 except that portion indicated by numeral 26 which is not coated and such uncoated portion faces directly toward the main reflector. Thus a restricted outlet 26 is provided for the light beam emitted from the light bulb. In addition to the foregoing, the interior of the light bulb facing the outlet 26 is provided with a silver coating as indicated at 25a which is designed to act as a primary reflector.

The colour selector 17 previously mentioned is operatively mounted on socket 23. In structure, the selector includes lens members 27 and 28 of contrasting colours such for example as "red" and "green" which are conventionally recognized as "stop" and "go" signals. As particularly observed in Fig. 2, the lens members 27 and 28 are disposed at opposite sides of the light bulb and at right angles to the main reflector. In this position then the colours in the lens do not in any manner influence or reflect upon the ordinary "white" light beam of signal transmitted from the signal lamp through the lens 21.

Lens members 27 and 28 are carried by a suitable frame structure supported by arm members 29 and 30, the latter being connected to a sleeve 31 which is rotatably mounted upon socket 23 and retained in operative position by means of an adjustable collar or the like 32. Arm member

29 is provided with a vertically extending shaft 33 which extends through a bushed opening in the housing where, exteriorly of the housing 15, it is fitted with a spur gear 34. A further spur gear 35 meshingly engages gear 34 mounted on horizontal shaft 36, such shaft extending rearwardly through the sight support means to the rear of the handle 16 where it is provided with an operating lever or handle 37. The lever 37 depending downwardly, assumes a position where it may conveniently be operated by movement of the thumb of the operator when colour signals are required. A collar 38 on shaft 36 maintains the operating gears in meshing engagement while a cover member 39, connected to the housing in any suitable manner, protects the gear mechanism.

Interiorly of the housing and adjacent the rear thereof, I provide a reflector member 40. The reflector is provided with supporting arm members 41 which extend through bosses 42. Adjusting nuts 43 and expansion springs 44 provide means for adjusting the reflector for purposes of coordinating the path of travel of a light beam signal from the lamp with that of the sighting means 18.

Detachably secured to the rear of the lamp housing adjacent the top thereof is the handle member 16. In structure, the handle is of hollow, compartment like formation and provided with inlet and outlet openings 46 and 47 respectively for the passage of current conducting wires or leads to and from the hollow compartment while opening 48 at the top of the handle 16 provides means for the convenient insertion or removal of the detachably mounted switch member 49. In order that the hollow compartment may be sealed from the atmosphere, I provide insulating plugs 50 and 51 which are compressed around the current conducting wires at the inlet and outlet openings by means of gland nuts 52 and 53 while closure cover member 54 with suitable gasket means forms an air and gas-tight closure for the opening 48. From the foregoing it will be seen that not only the compartment of the handle member 16 is in the form of a gas-proof chamber or compartment for the switch 49 but the housing 15 enclosing the light bulb 24 is also in the form of a gas-proof compartment or chamber. With these compartments effectively sealed from the atmosphere, the signal lamp may be operated with every degree of safety where combustible gases or vapours exist.

Means for operating the switch 49 to close the circuit and light the bulb 24 comprises hand or finger operated trigger member 55 pivotally mounted as at 56 and spring actuated plunger 57. The spring actuated plunger member urges the trigger member outwardly and as a result the lighting circuit 19 is normally open. The switch member 49 includes a sealed housing 58 enclosing a switch or contact operating plunger 59, movable spring contact 60 and stationary contact 61, the contacts 60 and 61 being provided with wire or lead connecting terminals 62 and 63.

The circuit herein includes a source of current supply such as a battery 64, lead 65, jack-plug 66, lead 67, lamp 24, spring contact 60 which is the means for closing the circuit and lead 68 which returns to battery 64.

Preferably, the cover member 54 supports the sighting means 18 as well as providing a closure cover for the opening 48 which leads to the handle compartment. As more particularly observed in Figs. 1 and 4, the cover member 54 is provided

with upwardly extending support members 69 and it is such support means to which the sighting means 18 is detachably secured by means of embracing straps or the like 70.

Sighting means for the signal lamp may be of the barrel type or of the telescopic type, circumstances dictating the type employed. In the present instance I illustrate the former which includes a hollow tubular member 71 provided with front squared circle sighting element 72 and a rear peep-sight element 73. A flexible eye piece 74 protects the eye of the operator from injury when engaged with the barrel sight while open sight means includes front and rear sight elements 75 and 76 mounted on the top of the tubular member 71.

In order to guard against error in the directional movement of the lever 37 to insure that the desired signal colour is flashed from the lamp, I provide the rear of the handle member with colour indicator means 77, 78 and 79 which corresponds to the colour flashes from the lamp. Thus, when lever 37 is moved to the "right" one colour signal is flashed, when moved to the "left" a different colour signal is flashed and when the lever 37 is disposed centrally of the handle, the normally "white" colour signal is flashed.

Operation

When the signal lamp is required for operation, the jack-plug 66 is plugged into the battery terminal and the lamp is then ready for operational purposes. The lamp is then swung by hand to eye level when the sighting means are trained upon the desired object. Assuming that an ordinary white signal flash is desired, the lever 37 is positioned centrally of the handle member as previously described. In this position a light beam from the bulb 24 will pass through the uncoated portion 26 of the bulb directly to the reflector 40 which in turn will reflect a white signal flash, the coloured lenses 27 and 28 being disposed at right angles to the path of travel of the light beam from the reflector, do not influence or interfere with the colour value of the white signal flash. Signal messages are then transmitted by intermittent pressure and release of the trigger member 55 which closes and opens the circuit 19 and causing the necessary signal to be flashed.

Should a "red" signal be desired, the lever 37 is moved to the right or left as the case may be, such movement operating the shaft 36, gears 35 and 34 and shaft 33 which rotatably moves the frame 17 with red coloured lens into a direct path between the uncoated portion 26 of the bulb and the reflector 40 which results in a "red" signal flash when the lamp is operated. With the "red" lens in the direct path of the light beam as previously mentioned, it is noted that the "green" lens is disposed at the opposite and dark or coated side of the bulb and does not influence the colour value of the "red" signal when flashed from the lamp. Should it be desired to flash a "green" signal, then lever 37 is moved to its opposite position on the handle by simple thumb action, such operation moving the "green" lens into a direct path between the uncoated portion 26 of the bulb and the reflector 40 which then enables a "green" signal light to be flashed from the lamp.

From the foregoing it will be seen that I provide a novel structural arrangement which enables signals to be flashed in different colour

values and that the colour values may be readily and conveniently changed or altered without one interfering or influencing the other and with the vital elements housed in gas-proof compartments. It will be understood however that the invention may be embodied in other specific forms without departing from the spirit of essential characteristics of the invention.

I claim:

1. In a signal lamp of the character described, a housing member provided with a lens closed opening and a light reflector, a light bulb mounted in the housing, the said light bulb having a coating of light impenetrable medium with a restricted light transparent area arranged to transmit a beam of light therefrom toward the reflector, a normally open circuit for the light bulb having a control switch therein, a color selector mounted within the housing provided with lenses of different color values, the said lenses normally being out of the path of travel of a light beam from the transparent area of the bulb and movable into the path of the said light beam for the transmission of a light signal of a preselected color, a single handle grip member secured to the rear of the housing, a finger operable trigger and a color selector operating lever carried by the handle grip for independently and simultaneously operating the switch to close and open the light circuit and to move the color selector by a single hand operation.

2. In a signal lamp of the character described, a housing member provided with a lens closed opening and a light reflector, a light bulb mounted in the housing, the said bulb having a coating of light impenetrable medium with a restricted light transparent area arranged in the direction of the reflector, a normally open circuit for the light bulb having a control switch therein, a color selector mounted within the housing provided with lenses having different color values, the said lenses normally being out of the path of travel of a light beam from the transparent area of the bulb and movable into the path of travel of the light beam to provide a signal light of preselected color, a single handle grip member secured to the rear of the housing, a thumb operable lever for operating the color selector and a finger operable trigger for operating the light circuit switch for independently and simultaneously closing and opening the light circuit and moving the color selector into and out of the path of travel of a light beam from the bulb by a single hand operation and supplementary light reflecting means carried by the bulb.

3. In a signal lamp of the character described, a housing member provided with a lens closed opening and a light reflector, a light bulb mounted in the housing, the said light bulb having a coating of light impenetrable medium with a restricted light transparent area arranged to permit a beam of light from the bulb to be transmitted in the direction of the reflector, a normally open circuit for the bulb having a control switch therein, a color selector mounted in the housing on opposite sides of the light bulb provided with lenses having different color values, the said lenses normally being out of the path of travel of a light beam from the transparent area of the light bulb and movable into the path of the said light beam for the transmission of signals of preselected color, a single handle grip member secured to the housing, a thumb operable lever for the color selector and a finger operable trigger for the light circuit carried by the handle grip for independently and simultaneously moving the color lens into and out of the path of travel of the light beam from the light bulb and closing and opening the light circuit by a single hand operation and visible color identifying means for predetermining the selection of the lens color.

CEDRIC W. M. MORRIS.

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